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NEWS	2	JUL 28	CA/CAplus patent coverage enhanced
NEWS	3	JUL 28	EPFULL enhanced with additional legal status information from the epoline Register
NEWS	4	JUL 28	IFICDB, IFIPAT, and IFIUDB reloaded with enhancements
NEWS	5	JUL 28	STN Viewer performance improved
NEWS	6	AUG 01	INPADOCDB and INPAFAMDB coverage enhanced
NEWS	7	AUG 13	CA/CAplus enhanced with printed Chemical Abstracts page images from 1967-1998
NEWS	8	AUG 15	CAOLD to be discontinued on December 31, 2008
NEWS	9	AUG 15	CAplus currency for Korean patents enhanced
NEWS	10	AUG 27	CAS definition of basic patents expanded to ensure comprehensive access to substance and sequence information
NEWS	11	SEP 18	Support for STN Express, Versions 6.01 and earlier, to be discontinued
NEWS	12	SEP 25	CA/CAplus current-awareness alert options enhanced to accommodate supplemental CAS indexing of exemplified prophetic substances
NEWS	13	SEP 26	WPIDS, WPINDEX, and WPIX coverage of Chinese and and Korean patents enhanced
NEWS	14	SEP 29	IFICLS enhanced with new super search field
NEWS	15	SEP 29	EMBASE and EMBAL enhanced with new search and display fields
NEWS	16	SEP 30	CAS patent coverage enhanced to include exemplified prophetic substances identified in new Japanese-language patents
NEWS	17	OCT 07	EPFULL enhanced with full implementation of EPC2000
NEWS	18	OCT 07	Multiple databases enhanced for more flexible patent number searching
NEWS	19	OCT 22	Current-awareness alert (SDI) setup and editing enhanced
NEWS	20	OCT 22	WPIDS, WPINDEX, and WPIX enhanced with Canadian PCT Applications
NEWS	21	OCT 24	CHEMLIST enhanced with intermediate list of pre-registered REACH substances

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=> e allicin
E1 41 ALLICHTHYS/BI
E2 1 ALLICID/BI
E3 10 --> ALLICIN/BI
E4 3 ALLICINE/BI
E5 1 ALLICININ/BI
E6 1 ALLICININE/BI
E7 1 ALLICL/BI
E8 1 ALLICL4/BI
E9 1 ALLICLAD/BI
E10 1 ALLICLADOL/BI
E11 1 ALLICLAVINE/BI
E12 21 ALLICO/BI

=> s e3
L1 10 ALLICIN/BI

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=> s l1 or allicin
           962 L1
           959 ALLICIN
             2 ALLICINS
           960 ALLICIN
                 (ALLICIN OR ALLICINS)
L2        1161 L1 OR ALLICIN

=> s l2 and (disinfect? or antimicrob? or antibact?)
        112953 DISINFECT?
         84782 ANTIMICROB?
        111482 ANTIBACT?
L3         198 L2 AND (DISINFECT? OR ANTIMICROB? OR ANTIBACT?)

=> s l3 and py<=2004
      25113646 PY<=2004
L4         118 L3 AND PY<=2004

=> s l4 and not patent/dt
MISSING TERM 'AND NOT'
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operator followed immediately by another operator.

=> s l4 not patent/dt
       6434395 PATENT/DT
L5           80 L4 NOT PATENT/DT

=> d l5 ibib abs 1-80

L5   ANSWER 1 OF 80  CAPLUS  COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER:         2005:437832  CAPLUS
DOCUMENT NUMBER:          143:382692
TITLE:                    Broad-spectrum activity of the volatile phytoanticipin
                          allicin in extracts of garlic (Allium sativum
```

L.) against plant pathogenic bacteria, fungi and oomycetes
AUTHOR(S): Curtis, Hannah; Noll, Ulrike; Stoermann, Judith; Slusarenko, Alan J.
CORPORATE SOURCE: Department of Plant Physiology (Bio III), RWTH Aachen, Aachen, D-52056, Germany
SOURCE: Physiological and Molecular Plant Pathology (2004), 65(2), 79-89
CODEN: PMPPEZ; ISSN: 0885-5765
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The volatile antimicrobial substance allicin is produced in garlic after cellular decompartmentalization when the tissues are damaged and the substrate alliin mixes with the enzyme alliin-lyase (E.C.4.4.1.4). The effectiveness of garlic extract against a range of plant pathogenic organisms was tested in vitro and in planta in diseased tissues. Allicin in garlic exts. was quantified spectrophotometrically and a rapid bioassay was developed for routine use. The in vitro activity of allicin against a prototrophic E. coli isolate was compared with that of the conventional antibiotics ampicillin and kanamycin. Activity in vitro was shown against the plant pathogenic bacteria Agrobacterium tumefaciens, Erwinia carotovora, Pseudomonas syringae pv. maculicola, P.s. pv. phaseolicola, P.s. pv. tomato, Xanthomonas campestris pv. campestris, the fungi Alternaria brassisicola, Botrytis cinerea, Plectosphaerella cucumerina, Magnaporthe grisea, and the Oomycete Phytophthora infestans. Disease reduction in planta was shown for Magnaporthe grisea-infected rice, Hyaloperonospora parasitica-infected Arabidopsis thaliana and Phytophthora infestans-infected potato tubers. Significantly, the active principle was effective in reducing P. infestans spore germination in vitro and disease in blighted tubers via the vapor phase (fumigation) as well as by direct application at the inoculation site. In Arabidopsis the reduction in disease was apparently due to a direct action against the pathogen since no accumulation of salicylic acid (a marker for systemic acquired resistance, or SAR) was observed after application. The potential for developing prepns. of garlic for use as an alternative to synthetic fungicides for organic food production is discussed.
REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 2 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2005:41079 CAPLUS
DOCUMENT NUMBER: 143:382650
TITLE: In vitro effects of four antimicrobial agents on Toxoplasma gondii
AUTHOR(S): Xu, Lifang; Yang, Qiulin; Shen, Yuanqiong; Wang, Beibing; Zeng, Qiao; Liang, Yu; Zhang, Yukuai; Wu, Heping
CORPORATE SOURCE: School of Medical Sciences, Nanhua University, Hengyang, 421001, Peop. Rep. China
SOURCE: Zhongguo Renshou Gonghuanbing Zazhi (2004), 20(10), 885-887
CODEN: ZRGZAP; ISSN: 1002-2694
PUBLISHER: Zhongguo Renshou Gonghuanbing Zazhi Bianweihui
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB The human foreskin fibroblast (HFF) monolayer cultures on glass cover slip in dishes were infected with ~3000 tachyzoites of T. gondii RH strain, and different concns. of the antimicrobial agents were added to the cultures at the same time when the tachyzoites were added, or after tachyzoites had invaded into the HFF cultures. The morphol. changes and the growth conditions were observed under the inverted microscopy at one hour

interval. After 3 days cultivation, the cover slips were taken out from dishes, washed with Hanks solution immediately, stained with Giemsa solution and examined under microscopy. The results showed that erythromycin could inhibit the growth and multiplication of T. gondii at concns. of 100-150 μg/mL, but its effect was not parasiticidal. Azithromycin under concentration of 20 μg/mL showed definite parasiticidal effect, but under concentration over 80 μg/mL it showed cytotoxic effect to the HFF cells. However, its inhibitory effect on T. gondii was closely correlated with the doses used. No inhibitory effect on the growth and multiplication of T. gondii was observed under concns. of 100 and 200 μg/mL of sulfadiazine or 20 and 40 μg/mL of allicin.

L5 ANSWER 3 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:1004052 CAPLUS
DOCUMENT NUMBER: 142:303340
TITLE: Allylthiosulfinate: β-cyclodextrin inclusion complex: Preparation, characterization and microbiological activity
AUTHOR(S): Nikolic, V.; Stankovic, M.; Kapor, A.; Nikolic, Lj.; Cvetkovic, D.; Stamenkovic, J.
CORPORATE SOURCE: Faculty of Technology, Institute of Physics, Novi Sad, Yugoslavia
SOURCE: Pharmazie (2004), 59(11), 845-848
CODEN: PHARAT; ISSN: 0031-7144
PUBLISHER: Govi-Verlag Pharmazeutischer Verlag GmbH
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An allylthiosulfinate: β-cyclodextrin inclusion complex was synthesized and characterized using x-ray crystallog., IR spectroscopy, thermal anal. and NMR. The microbiol. activity of the complex was tested on available fungi (Candida albicans ATCC 10231, Aspergillus niger ATCC 16404) and bacteria (Staphylococcus aureus ATCC 6538, Escherichia coli ATCC 25922, Pseudomonas aeruginosa ATCC 9027). In small concns., the complex inhibited the growth of the microorganisms tested. The most susceptible microorganism was Candida albicans ATCC 10231, and the least susceptible Pseudomonas aeruginosa ATCC 9027.
REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 4 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:708835 CAPLUS
DOCUMENT NUMBER: 141:328370
TITLE: Antimicrobial activity of allicin against honey bee pathogens
AUTHOR(S): Aronstein, K. A.; Hayes, G. W.
CORPORATE SOURCE: Kika de la Garza Subtropical Agricultural Center, USDA-ARS Honey Bee Research Unit, Weslaco, TX, 78596, USA
SOURCE: Journal of Apicultural Research (2004), 43(2), 57-59
CODEN: JACRAQ; ISSN: 0021-8839
PUBLISHER: International Bee Research Association
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Allicin is the chief antimicrobial compound produced in garlic. It was studied for activities against human and food-born pathogens. In this study the antimicrobial activity of allicin (Allisure liquid) was tested against a number of bacterial and fungal pathogens (Paenibacillus larvae larvae, P. l. pulvifaciens, Ascosphaera apis, and Ascosphaera aggregata) associated with social (Apis mellifera) and solitary bees. The min. inhibitory concns. (MIC) of

allicin were determined using a broth microdilution method in the range of 1000 ppm to 25 ppm. Allicin liquid showed activity against gram-pos. bacterial isolates (MIC 350 ppm) and fungal isolates (MIC 250 ppm). The antimicrobial activity of allicin was also tested in an agar diffusion test using 250 μg of allicin per disk. Bacterial isolates (P. l. pulvifaciens and P. l. larvae) were associated with zones of inhibition in the range of 24-26 mm and 45-50 mm, resp. The fungal isolates were associated with zones of inhibition in the range of 31-35 mm (A. apis) and 35-37 mm (A. aggregata). The macrolide class antibiotic tylosin (Tylan 50, Elanco Inc., IN) was used as a control in both the MIC assay and in the agar diffusion test. The data from this study point to the potential of allicin to inhibit growth of bee pathogens and reduce occurrence of at least two major bee diseases.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 5 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:681979 CAPLUS
DOCUMENT NUMBER: 141:328359
TITLE: Antibacterial activity of a new, stable, aqueous extract of allicin against methicillin-resistant Staphylococcus aureus
AUTHOR(S): Cutler, R. R.; Wilson, P.
CORPORATE SOURCE: School of Health and Bioscience, University of East London, London, E15 4LZ, UK
SOURCE: British Journal of Biomedical Science (2004), 61(2), 71-74
CODEN: BJMSEO; ISSN: 0967-4845
PUBLISHER: Step Publishing Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The increasing prevalence of methicillin-resistant Staphylococcus aureus (MRSA) in hospitals and the community has led to a demand for new agents that could be used to decrease the spread of these bacteria. Topical agents such as mupirocin were used to reduce nasal carriage and spread and to treat skin infections; however, resistance to mupirocin in MRSAs is increasing. Allicin is the main antibacterial agent isolated from garlic, but natural exts. can be unstable. In this study, a new, stable, aqueous extract of allicin (extracted from garlic) is tested on 30 clin. isolates of MRSA that show a range of susceptibilities to mupirocin. Strains were tested using agar diffusion tests, min. inhibitory concentration (MIC) and min. bactericidal concentration (MBC). Diffusion tests showed that allicin liqs. produced zone diams. >33 mm when the proposed therapeutic concentration of 500 μg/mL (0.0005% w/v) was used. The selection of this concentration was based on evidence from the MIC, MBC and agar diffusion tests in this study. Of the strains tested, 88% had MICs for allicin liqs. of 16 μg/mL, and all strains were inhibited at 32 μg/mL. Furthermore, 88% of clin. isolates had MBCs of 128 μg/mL, and all were killed at 256 μg/mL. Of these strains, 82% showed intermediate or full resistance to mupirocin; however, this study showed that a concentration of 500 μg/mL in an aqueous cream base was required to produce an activity equivalent to 256 μg/mL allicin liquid

REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:528952 CAPLUS
DOCUMENT NUMBER: 142:225310
TITLE: Organosulfur compounds from Allium sativum and physiological activities

AUTHOR(S): Kwon, Soon-Kyoung
CORPORATE SOURCE: College of Pharmacy, Duksung Women's University, Seoul, 132-714, S. Korea
SOURCE: Journal of Applied Pharmacology (2003), 11(1), 8-32
CODEN: JOAPA6; ISSN: 1225-6110
PUBLISHER: Korean Society of Applied Pharmacology
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Korean

AB A review. Garlic (Allium sativum L.) is one of the oldest cultivated plants and has been used throughout the world as food supplement and folk medicine for thousands of years. In modern times a number of garlic-derived products are introduced on the market as health food supplement in ever growing scale. In 1844 German chemist Wertheim investigated the garlic first time chemical and thereafter many kinds of organosulfur compds. were isolated and their biol. activities were elucidated scientifically. The main biol. activities are antibacterial, antifungal, antithrombotic, cholesterol-lowering, antineoplastic and hepatoprotective activities. Chemical works as well as therapeutic and preventive effects of garlic are reviewed.

L5 ANSWER 7 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:361950 CAPLUS
DOCUMENT NUMBER: 140:417336
TITLE: Efficacy of allicin, the reactive molecule of garlic, in inhibiting Aspergillus spp. in vitro, and in a murine model of disseminated aspergillosis
AUTHOR(S): Shadkchan, Yona; Shemesh, Einav; Mirelman, David; Miron, Talia; Rabinkov, Aharon; Wilchek, Meir; Osherov, Nir
CORPORATE SOURCE: Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel
SOURCE: Journal of Antimicrobial Chemotherapy (2004), 53(5), 832-836
CODEN: JACHDX; ISSN: 0305-7453
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The evaluation of allicin, the biol. active compound responsible for the antimicrobial activities of freshly crushed garlic cloves, in inhibiting Aspergillus spp. in vitro and in a murine model of disseminated aspergillosis. Pure allicin was prepared by reacting synthetic alliin with a stabilized preparation of the garlic enzyme alliinase. We tested the in vitro efficacy of pure allicin against 31 clin. isolates of Aspergillus spp. using a microdilution broth method and following the NCCLS guidelines (document M-38P). Subsequently, the in vivo efficacy of allicin was tested in immunocompetent mice infected i.v. (iv) with Aspergillus fumigatus conidia. Allicin (5 mg/kg body weight) was administered iv once daily for 5 days post-infection or orally (po) (9 mg/kg body weight) for 5 days pre-infection and 10 days post-infection. No ill effects were observed in allicin -treated uninfected mice. The in vitro MICs and MFCs of allicin were between 8 and 32 mg/L, indicating that allicin in its pure form may be an effective fungicide in vitro. Time-kill studies indicate that allicin exerts its fungicidal activity within 2-12 h of administration in vitro. Allicin treatment significantly prolonged survival of infected mice ($P < 0.01$) from mean survival time (MST) = 7.7 days in untreated mice to MST = 21.3 and 13.9 days for allicin iv and po treated mice, resp. Allicin iv treatment led to a significant ($P < 0.001$) 10-fold reduction in fungal burden in A. fumigatus infected mice as evaluated by quant. fungal cultures of kidney tissue samples. These favorable results, despite the short

half-life of this compound in vivo, support further studies of controlled sustained release or more prolonged administration of allicin as a treatment for aspergillosis.
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 8 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2004:337037 CAPLUS
DOCUMENT NUMBER: 140:390132
TITLE: Allicin inhibits SDF-1α-induced T cell interactions with fibronectin and endothelial cells by down-regulating cytoskeleton rearrangement, Pyk-2 phosphorylation and VLA-4 expression
AUTHOR(S): Sela, Uri; Ganor, Sharon; Hecht, Iris; Brill, Alexander; Miron, Talia; Rabinkov, Aharon; Wilchek, Meir; Mirelman, David; Lider, Ofer; Hershkoviz, Rami
CORPORATE SOURCE: Department of Immunology, The Weizmann Institute of Science, Rehovot, 76 100, Israel
SOURCE: Immunology (2003), Volume Date 2004, 111(4), 391-399
CODEN: IMMUAM; ISSN: 0019-2805
PUBLISHER: Blackwell Publishing Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Allicin, a major ingredient of fresh garlic extract that is produced during the crushing of garlic cloves, exerts various beneficial biol. effects, including a broad spectrum of antimicrobial activity, antihyperlipidemic and antihypertensive effects. However, how allicin affects the immune system is less well known, and its effect on human T cells has never been studied. Here, we examined the in-vitro effects of allicin on the functioning of T cells related to their entry to inflamed extravascular sites. We found that allicin (20-100 μM) inhibits the SDF-1α (CXCL12)-induced T cell migration through fibronectin (FN), and that this inhibition is mediated by the down-regulation of (i) the reorganization of cortical actin and the subsequent T cell polarization, and (ii) T cell adhesion to FN. Moreover, allicin also inhibited T cell adhesion to endothelial cells and transendothelial migration. The mechanisms underlying these inhibitory effects of allicin are associated with its ability to down-regulate the phosphorylation of Pyk2, an intracellular member of the focal adhesion kinases, and to reduce the expression of the VCAM-1- and FN-specific α4β1-integrin (VLA-4). The ability of allicin to down-regulate these chemokine-induced and VLA-4-mediated T cell functions explains its beneficial biol. effects in processes where T cells play an important role and suggests that allicin may be used therapeutically with chronic inflammatory diseases.
REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 9 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:871906 CAPLUS
DOCUMENT NUMBER: 140:125088
TITLE: In vitro activity of allicin against Staphylococcus epidermidis and influence of subinhibitory concentrations on biofilm formation
AUTHOR(S): Perez-Giraldo, C.; Cruz-Villalon, G.; Sanchez-Silos, R.; Martinez-Rubio, R.; Blanco, M. T.; Gomez-Garcia, A. C.
CORPORATE SOURCE: Department of Microbiology, Faculty of Medicine, University of Extremadura, Badajoz, Spain
SOURCE: Journal of Applied Microbiology (2003),

95(4), 709-711
CODEN: JAMIFK; ISSN: 1364-5072
PUBLISHER: Blackwell Publishing Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The aim of this study is to determine the in vitro activity of allicin against Staphylococcus epidermidis and to evaluate the influence of allicin on biofilm formation. In vitro activity of allicin (diallyl thiosulphinate) against 38 strains of S. epidermidis was investigated. The activity of allicin was similar against S. epidermidis methicillin susceptible and methicillin resistant strains [min. inhibitory concentration (MIC)90 = 8 mg l-1]. In general, subinhibitory concns. (sub-MIC) of allicin diminished biofilm formation in the five strains analyzed. The results confirm the antibacterial effect of allicin. Sub-MICs of allicin also diminished the biofilm formations by S. epidermidis. The present study shows that allicin is active in vitro against S. epidermidis and that sub-MICs of allicin may play a role in the prevention of adherence of this bacteria to medical devices.
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 10 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2003:856196 CAPLUS
DOCUMENT NUMBER: 140:73368
TITLE: Allyl-thiosulfinates, the Bacteriostatic Compounds of Garlic against Helicobacter pylori
AUTHOR(S): Canizares, Pablo; Gracia, Ignacio; Gomez, Luis A.; Martin de Argila, Carlos; Boixeda, Daniel; Garcia, Antonio; de Rafael, Luis
CORPORATE SOURCE: Departamento Ingenieria Quimica, Facultad de Ciencias Quimicas, Universidad de Castilla-La Mancha, Ciudad Real, 13004, Spain
SOURCE: Biotechnology Progress (2004), 20(1), 397-401
CODEN: BIPRET; ISSN: 8756-7938
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Allicin and allyl-Me plus methyl-allyl thiosulfinate from acetonic garlic exts. (AGE) have been isolated by high-performance liquid chromatog. These compds. have shown inhibition of the in vitro growth of Helicobacter pylori (Hp), the bacterium responsible for serious gastric diseases such as ulcers and even gastric cancer. A chromatog. method was optimized and used to isolate these thiosulfinates. The method developed has allowed the isolation of natural thiosulfinates extracted from garlic by organic solvents and is an easy and cheap methodol. that avoids complex synthesis and purification procedures. The capacity and effectiveness of isolated natural thiosulfinates have been tested, and this has enabled the identification of the main compds. responsible for the bacteriostatic activity shown by AGE origin of these kinds of organosulfur compds. along with ethanolic garlic exts. (EGE). Addnl., microbiol. analyses have suggested that these compds. show a synergic effect on the inhibition of the in vitro growth of Hp. The results described here facilitate the process of obtaining garlic exts. with optimal bacteriostatic properties. The product is obtained in a way that avoids expensive purification methods and will allow the design of live tests with the aim of investigating the potential for the use of these garlic derivs. in the treatment of patients with Hp infections.
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 11 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:899198 CAPLUS
DOCUMENT NUMBER: 138:320142
TITLE: Preservative effect of garlic in canned tomato paste
AUTHOR(S): Soloty, S.
CORPORATE SOURCE: Chemistry Department, Birjand University, Iran
SOURCE: Faslnamah-i Giyahan-i Daruyi (2002), 1(3), 45-50, 96
CODEN: GDYAB6; ISSN: 1684-0240
PUBLISHER: Pizhuhishkadah-i Giyahan-i Daruyi va Faravardahha-yi Tabi'i
DOCUMENT TYPE: Journal
LANGUAGE: Persian
AB The effects of fresh garlic and a chloroform extract of garlic (allicin) on the growth of Bacillus coagulans (responsible for the flat-sour defect of canned tomato paste) were investigated. The min. inhibitory concns. (MIC) of fresh garlic and garlic extract against Bacillus coagulans were 3% volume/volume and 0.5% volume/volume, resp. Addition of these concns. of fresh garlic and garlic extract had no significant effects on the chemical and phys. characteristics of canned tomato paste.

L5 ANSWER 12 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:283128 CAPLUS
DOCUMENT NUMBER: 137:19621
TITLE: Alliinase-independent inhibition of Staphylococcus aureus B33 by heated garlic
AUTHOR(S): Kyung, K. H.; Kim, M. H.; Park, M. S.; Kim, Y. S.
CORPORATE SOURCE: Dept. of Food Science, Sejong Univ., Seoul, 143-747, S. Korea
SOURCE: Journal of Food Science (2002), 67(2), 780-785
CODEN: JFDSAZ; ISSN: 0022-1147
PUBLISHER: Institute of Food Technologists
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Heated (121°) garlic extract in which alliinase was inactivated before crushing exhibited complete bacteriostatic activity at 15% against Staphylococcus aureus. Garlic heated for 45 min showed the highest antibacterial activity and the relative peak areas of 4-heptenal, Me allyl disulfide, diallyl disulfide, 2-vinyl-4H-1,3-dithiin, and diallyl trisulfide (DATS) were highest at 45 min of heating. Other than 4-heptenal, all these compds. are known to possess different degrees of antibacterial activity. DATS was thought to be the primary antibacterial compound in heated garlic extract It was tentatively concluded that antibacterial compds. were formed from alliin unreacted by alliinase by marked heating. Diallyl compds. with more than three sulfur atoms and the oxidized form of allicin were not detected.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 13 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2002:128711 CAPLUS
DOCUMENT NUMBER: 136:288601
TITLE: Helicobacter pylori eradication with beta carotene, ascorbic acid and allicin
AUTHOR(S): Kockar, Cem; Ozturk, Mustafa; Bavbek, Nuket
CORPORATE SOURCE: Department of Gastroenterology, Fatih University Medical School, Ankara, Turk.
SOURCE: Acta Medica (Hradec Kralove, Czech Republic) (2001), 44(3), 97-100

CODEN: AMHRF7; ISSN: 1211-4286
PUBLISHER: Charles University Faculty of Medicine
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In this study, in vivo effectiveness of ascorbic acid (AA), beta carotene (BC) and allicin in HP eradication were evaluated. 210 Patients who are HP pos. in biopsy were involved in this study. The patients randomized to seven treatment groups (each group consisting of 30 patients). The first group was given standard eradication treatment (lansaprasol 30 mg bid, clarithromycin 500 mg bid, amoxicillin 1 g bid for 14 days). Second group received AA 1000 mg/day in addition to the standard treatment. Third group received only AA 1000 mg/day for 14 days. Fourth group was treated with standard regiment plus 120 mg/day BC. Fifth group was given only BC 120 mg/day for 14 days. Sixth group was given standard regiment and allicin 4200 μg/day. Seventh group received only allicin 1200 μg/day for 14 days. The eradication was achieved in 20 (66.6%) in group I, 15 (50%) in group II, 3 (10%) in group III, 15 (50%) in group IV, 0 (0%) in group V, 27 (90%) in group VI and 7 (23.3%) in group VII. Allicin seemed to be potentially effective agent for HP eradication but ascorbic acid and beta carotene were found to be ineffective.
REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 14 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:751130 CAPLUS
DOCUMENT NUMBER: 137:19471
TITLE: Thiosulfinates
AUTHOR(S): Whitmore, B. B.; Naidu, A. S.
CORPORATE SOURCE: USA
SOURCE: Natural Food Antimicrobial Systems (2000), 349-379. Editor(s): Naidu, A. S. CRC Press LLC: Boca Raton, Fla.
CODEN: 69BXHG
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review discussing allicin, ajoene, and other thiosulfinates of garlic as antimicrobial agents.
REFERENCE COUNT: 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 15 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:732371 CAPLUS
DOCUMENT NUMBER: 136:17875
TITLE: Effects of storage temperature and pH on the stability of antibacterial effectiveness of garlic extract against Escherichia coli B34
AUTHOR(S): Kim, Myung Hee; Kang, Young Dong; Kyung, Kyu Hang
CORPORATE SOURCE: Department of Food Science, Sejong University, Seoul, 143-747, S. Korea
SOURCE: Journal of Microbiology and Biotechnology (2001), 11(4), 720-723
CODEN: JOMBES; ISSN: 1017-7825
PUBLISHER: Korean Society for Applied Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effect of long-term storage on garlic antibacterial activity was investigated. A concentration of 5% or more garlic was found to be necessary to completely inhibit Escherichia coli growth in tryptic soy broth. This value is substantially higher than the min. inhibitory concentration of 1% for E.

coli reported previously. PH-modified garlic extract was stored at different temps. to investigate the impact of storage conditions (i.e., temperature, pH, period of storage) on the stability of the antibacterial activity of the garlic extract used against E. coli B34. The antibacterial effectiveness of the garlic extract against E. coli remained stable when both the storage temperature and the pH of the extract were kept low. When the garlic extract was stored at 40°C and above, most or all of the garlic antibacterial activity disappeared after a 24-h storage period, regardless of the storage pH. The antibacterial activity was weakened when the pH of the garlic extract was adjusted to 8, and at low temps.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 16 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:654362 CAPLUS
DOCUMENT NUMBER: 136:133739
TITLE: Control of foodborne pathogens and spoilage microorganisms by naturally occurring antimicrobials
AUTHOR(S): Beuchat, Larry R.
CORPORATE SOURCE: Center for Food Safety and Quality Enhancement, University of Georgia, Griffin, GA, USA
SOURCE: Microbial Food Contamination, [based on a U.S./Israel Workshop on Microbial Food Contamination], Shepherdsrtown, WV, United States, Nov. 8-12, 1998 (2001), Meeting Date 1998, 149-169. Editor(s): Wilson, Charles L.; Droby, Samir. CRC Press LLC: Boca Raton, Fla.
CODEN: 69BSUE
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English

AB A review, with refs. Naturally occurring chems. in foods of animal and plant origin often play an important role in controlling the growth of spoilage and pathogenic microorganisms. Numerous antimicrobials act as defense mechanisms against microbial invasion of animal and plant tissues or foods processed from them. Antimicrobials in animal tissues include cationic proteins, lytic enzymes such as lysozyme, and hydrolases such as lipases and proteases. Plant barks, stems, leaves, flowers, and fruits contain a wide range of phenolic compds. with various levels of antimicrobial activities. Among the most potent are eugenol from clove, cinnamic aldehyde (cinnamon), allicin (garlic, onion), and allyl isothiocyanate (mustard). Naturally occurring organic acids (e.g., citric and malic acids) also contribute substantially to protecting plant tissues and foods of plant origin against growth of pathogens. Phytoalexins are low mol. weight compds. produced in plant tissue in response to microbial infection or naturally occurring elicitors and have broad-spectrum antimicrobial activity. Their role in controlling human pathogenic bacteria is not fully understood. Clearly, naturally occurring antimicrobials are abundant in foods. Consumer demand for minimally processed, safe foods not preserved by synthetic chems. is evident on a global scale. Opportunities for increased com. application of natural antimicrobials exist but must be preceded by further research to assure the efficacy of single and multifactor preservative systems that include natural antimicrobials, without compromising sensory quality of foods.

REFERENCE COUNT: 147 THERE ARE 147 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 17 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:471097 CAPLUS
DOCUMENT NUMBER: 135:256229
TITLE: Antimicrobial activities of sulfur compounds derived from S-alk(en)yl-L-cysteine sulfoxides in Allium and Brassica
AUTHOR(S): Kyung, K. H.; Lee, Y. C.
CORPORATE SOURCE: Department of Food Science, Sejong University, Seoul, 143-747, S. Korea
SOURCE: Food Reviews International (2001), 17(2), 183-198
CODEN: FRINEL; ISSN: 8755-9129
PUBLISHER: Marcel Dekker, Inc.
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 90 refs. Allium and Brassica vegetables have long been known for their antimicrobial activity against various microorganisms, including Gram-pos. and Gram-neg. bacteria and fungi. Most microorganisms tested were sensitive to exts. of the Allium and Brassica vegetables and the degree of sensitivity varied depending on the strain under study and test conditions. Among the vegetables, garlic showed the most potent activity, followed by onion. Brassica, including cabbage, showed the least potent activity. The principal antimicrobial compds. of Allium and Brassica have been elucidated as allicin (S-allyl-L-propenethiosulfinate) and Me methanethiosulfinate, resp. Both compds. belong to the same chemical group, thiosulfinate, generated from S-allyl and S-Me derivs. of L-cysteine sulfoxide, resp., existing in Allium and Brassica as major non-protein sulfur-containing amino acids. There have been only few applications of garlic as a natural food preservative, in spite of numerous studies on antimicrobial activity of the vegetables. Relative instability of the antimicrobial compds. and the strong odor of their mother plants seem to limit the use of them as a practical food preservative.
REFERENCE COUNT: 90 THERE ARE 90 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 18 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2001:342350 CAPLUS
DOCUMENT NUMBER: 135:58377
TITLE: Antibacterial activity of S-methyl methanethiosulfinate and S-methyl 2-propene-1-thiosulfinate from Chinese chive toward Escherichia coli O157:H7
AUTHOR(S): Seo, Kwon Il; Moon, Yea Hwang; Choi, Sang Uk; Park, Ki Hun
CORPORATE SOURCE: Department of Food and Nutrition, Sunchon National University, Sunchon, 540-742, S. Korea
SOURCE: Bioscience, Biotechnology, and Biochemistry (2001), 65(4), 966-968
CODEN: BBBIEJ; ISSN: 0916-8451
PUBLISHER: Japan Society for Bioscience, Biotechnology, and Agrochemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB S-Me methanethiosufinate (1) and S-Me 2-propene-1-thiosulfinate (2) were easily separated from Chinese chive (Allium tuberosum) using simple column chromatog. Both compds. showed antibacterial activities against E. coli O-157:H7 including spoilage microorganism in food. Structural assignment was based on mass and NMR-spectroscopic methods.
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 19 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2001:30177 CAPLUS
DOCUMENT NUMBER: 134:204945
TITLE: Antimicrobial properties of garlic oil against human enteric bacteria: Evaluation of methodologies and comparisons with garlic oil sulfides and garlic powder
AUTHOR(S): Ross, Z. M.; O'Gara, E. A.; Hill, D. J.; Sleightholme, H. V.; Maslin, D. J.
CORPORATE SOURCE: St. George's University, Grenada, Antigua and Barbuda
SOURCE: Applied and Environmental Microbiology (2001), 67(1), 475-480
CODEN: AEMIDF; ISSN: 0099-2240
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The antimicrobial effects of aqueous garlic exts. are well established but those of garlic oil (GO) are little known. Methodologies for estimating the antimicrobial activity of GO were assessed and GO, GO sulfide constituents, and garlic powder (GP) were compared in tests against human enteric bacteria. Test methodologies were identified as capable of producing underestimates of GO activity. Antimicrobial activity was greater in media lacking tryptone or cysteine, suggesting that, as for allicin, GO effects may involve sulfhydryl reactivity. All bacteria tested, which included both gram-neg. and -pos. bacteria and pathogenic forms, were susceptible to garlic materials. On a weight-of-product basis, 24 h MICs for GO (0.02 to 5.5 mg/mL, 62 enteric isolates) and di-Me trisulfide (0.02 to 0.31 mg/mL, 6 enteric isolates) were lower than those for a mixture of diallyl sulfides (0.63 to 25 mg/mL, 6 enteric isolates) and for GP, which also exhibited a smaller MIC range (6.25 to 12.5 mg/mL, 29 enteric isolates). Viability time studies of GO and GP against Enterobacter aerogenes showed time- and dose-dependent effects. Based upon its thiosulfinate content, GP was more active than GO against most bacteria, although some properties of GO are identified as offering greater therapeutic potential. Further exploration of the potential of GP and GO in enteric disease control appears warranted.
REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 20 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:595534 CAPLUS
DOCUMENT NUMBER: 133:305271
TITLE: Molecular topology: a useful tool for the search of new antibacterials
AUTHOR(S): de Gregorio Alapont, C.; Garcia-Domenech, R.; Galvez, J.; Ros, M. J.; Wolski, S.; Garcia, M. D.
CORPORATE SOURCE: Unidad de Investigacion de Diseno de Farmacos y Conectividad Molecular Departamento de Quimica Fisica, Facultad de Farmacia, Universitat de Valencia, Valencia, 46100, Spain
SOURCE: Bioorganic & Medicinal Chemistry Letters (2000), 10(17), 2033-2036
CODEN: BMCLE8; ISSN: 0960-894X
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Mol. topol. has been applied to find new lead antibacterial compds. Among the selected compds., hesperidin, neohesperidin and Mordant Brown 24 stand out, with min. inhibitory concns. 90, MIC90<0.3 mg / mL.
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 21 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2000:528546 CAPLUS
DOCUMENT NUMBER: 133:321076
TITLE: Phytoantimicrobial (PAM) agents as multifunctional food additives
AUTHOR(S): Naidu, A. S.
CORPORATE SOURCE: College of Agriculture, California State Polytechnic University, Pomona, CA, 91768, USA
SOURCE: Phytochemicals as Bioactive Agents (2000), 105-129. Editor(s): Bidlack, Wayne R. Technomic Publishing Co., Inc.: Lancaster, Pa. CODEN: 69AFBJ
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review with 98 refs. The topics include PAM compds. from vegetable and essential oils, spices, fruits, vegetables and herbs, active ingredients of PAM prepns. (saponins, flavonoids, alkaloids, tannins), antimicrobial and other biol. effects of garlic thiosulfinates (allicin, ajoene), and antimicrobial effects of polyphenols from tea.
REFERENCE COUNT: 98 THERE ARE 98 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 22 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:309719 CAPLUS
DOCUMENT NUMBER: 133:71319
TITLE: Activities of garlic oil, garlic powder, and their diallyl constituents against Helicobacter pylori
AUTHOR(S): O'Gara, E. A.; Hill, D. J.; Maslin, D. J.
CORPORATE SOURCE: School of Health Sciences, University of Wolverhampton, Wolverhampton, WV1 1DJ, UK
SOURCE: Applied and Environmental Microbiology (2000), 66(5), 2269-2273 CODEN: AEMIDF; ISSN: 0099-2240
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Chronic Helicobacter pylori disease is reduced with Allium vegetable intake. This study was designed to assess the in vivo anti-H. pylori potential of a variety of garlic substances. The garlic materials all showed substantial but widely differing anti-H. pylori effects against all strains and isolates tested. The MICs (range, 8 to 32 μg/mL) and min. bactericidal concns. (MBCs) (range, 16 to 32 μg/mL) of undiluted garlic oil (GO) were smaller than those of garlic powder (GP) (MIC range, 250 to 500 μg/mL; MBC range, 250 to 500 μg/mL) but greater than the MIC of allicin (4.0 μg/mL) present in GP. Allicin (MIC, 6 μg/mL; MBC, 6 μg/mL) was more potent than diallyl disulfide (MIC range, 100 to 200 μg/mL; MBC range, 100 to 200 μg/mL), its corresponding sulfide, but of a strength similar to that of diallyl tetrasulfide (MIC range, 3 to 6 μg/mL; MBC range, 3 to 6 μg/mL). Antimicrobial activity of the diallyl sulfides increased with the number of sulfur atoms. Time course viability studies and microscopy showed dose-dependent anti-H. pylori effects with undiluted GO, GP, allicin, and diallyl trisulfide after a lag phase of ca. 1 to 2 h. Substantial in vitro anti-H. pylori effects of pure GO and GP and their diallyl sulfur components exist, suggesting their potential for in vivo clin. use against H. pylori infections.
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 23 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:281113 CAPLUS
DOCUMENT NUMBER: 132:292845

TITLE: Development of natural antimicrobial substances. 1
AUTHOR(S): Sakai, Shigeo
CORPORATE SOURCE: Sakai Consult. Eng. Off., Japan
SOURCE: Gekkan Fudo Kemikaru (2000), 16(4), 75-81
CODEN: GFKEEX; ISSN: 0911-2286
PUBLISHER: Shokuhin Kagaku Shinbunsha
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Japanese
AB A review with 17 refs., on development of natural antimicrobial substances for food preservation, discussing gallic acid from grape, dipicolic acid from natto, volatile organic compds. from Liliaceae, thiosulfinates and allicin from garlic, sarcodonins from Sarcodon scabrous, hinokitiol, chitosan, pectin-degrading products of hawthorn, yucca saponins, and capsaicin.

L5 ANSWER 24 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 2000:83653 CAPLUS
DOCUMENT NUMBER: 133:3796
TITLE: Biological functions of organosulfur compounds in Allium vegetables
AUTHOR(S): Kim, Hyun-Jung; Chun, Hyang-Sook
CORPORATE SOURCE: Korea Food Research Institute, Sungnam, 463-420, S. Korea
SOURCE: Han'guk Sikp'um Yongyang Kwahak Hoechi (1999), 28(6), 1412-1423
CODEN: HSYHFB; ISSN: 1226-3311
PUBLISHER: Korean Society of Food Science and Nutrition
DOCUMENT TYPE: Journal; General Review
LANGUAGE: Korean
AB This review contains a discussion of the physiol. activity of the components of Allium vegetables. Organosulfur compds. in Allium vegetables, such as ajoene, diallyl sulfides and S-allylcysteine, have cancer preventive activity in chemical induced animal cancer models. They also have inhibitory effects on proliferation of cancer cells in vitro. Allium vegetables have lipid- and cholesterol-lowering effect, and platelet aggregation inhibitory activity that help the prevention of cardiovascular diseases. Sulfur containing compds., especially allicin and ajoene, have antimicrobial activities against gram neg., pos. bacteria and fungi. Moreover, Allium organosulfur compds. such as S-allylcysteine showed reducing effects on the senescence related symptoms including cognition. Allium organosulfur compds. have significant importance in food industry as both biol. active ingredients and savory.

L5 ANSWER 25 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:434755 CAPLUS
DOCUMENT NUMBER: 131:211484
TITLE: In vitro inhibition of the growth of Helicobacter pylori by oil-macerated garlic constituents
AUTHOR(S): Ohta, Rie; Yamada, Norihiko; Kaneko, Hisae; Ishikawa, Keiko; Fukuda, Hiroyuki; Fujino, Tsuchiyoshi; Suzuki, Atsushi
CORPORATE SOURCE: Biodevelopment Division Central Institute, Nagoya Seiraku Co. Ltd., Nagoya, 468-8588, Japan
SOURCE: Antimicrobial Agents and Chemotherapy (1999), 43(7), 1811-1812
CODEN: AMACCQ; ISSN: 0066-4804
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A number of purified constituents of oil-macerated garlic (Allium sativum) were inhibitory to H. pylori with MICs of 10 to 25 μg/mL. These

included 4 ajoenes and 1 thiosulfinate. Vinyldithiins were not inhibitory at concns. <100 μg/mL.
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 26 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:408789 CAPLUS
DOCUMENT NUMBER: 131:182185
TITLE: Antibacterial effect of garlic and omeprazole on Helicobacter pylori
AUTHOR(S): Jonkers, D.; Van den Broek, E.; Van Dooren, I.; Thijs, C.; Dorant, E.; Hageman, G.; Stobberingh, E.
CORPORATE SOURCE: Department of Medical Microbiology, University Hospital Maastricht, Maastricht, 6202 AZ, Neth.
SOURCE: Journal of Antimicrobial Chemotherapy (1999), 43(6), 837-839
CODEN: JACHDX; ISSN: 0305-7453
PUBLISHER: Oxford University Press
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The antibacterial effect of a home-made raw garlic extract and com. garlic tablets alone and in combination with antibiotics or omeprazole was determined against clin. isolates of Helicobacter pylori. MIC values of raw garlic extract and three types of com. garlic tablets ranged from 10,000 to 17,500 mg/L. When MIC values of the com. tablets were based on the allicin content, no differences between the three types were observed The combination of garlic and omeprazole, studied with killing curves, showed a synergic effect which was concentration dependent. Further clin. evaluation of garlic in combination with the conventional agents for H. pylori treatment seems warranted.
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 27 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1999:243799 CAPLUS
DOCUMENT NUMBER: 131:56428
TITLE: Antimicrobial activity of the thiosulfinates isolated from oil-macerated garlic extract
AUTHOR(S): Yoshida, Hisae; Katsuzaki, Hirotaka; Ohta, Rie; Ishikawa, Keiko; Fukuda, Hiroyuki; Fujino, Tsuchiyoshi; Suzuki, Atsushi
CORPORATE SOURCE: Biodevelopment Division, Central Institute, Nagoya Seiraku Co., Ltd., Nagoya, 468-0065, Japan
SOURCE: Bioscience, Biotechnology, and Biochemistry (1999), 63(3), 591-594
CODEN: BBBIEJ; ISSN: 0916-8451
PUBLISHER: Japan Society for Bioscience, Biotechnology, and Agrochemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Three thiosulfinates were isolated from oil-macerated garlic extract, and their structures were identified as 2-propene-1-sulfinothioic acid S-(Z,E)-1-propenyl ester [AIIS(O)SPn-(Z,E)], 2-propenesulfinothioic acid S-Me ester [AIIS(O)SMe], and methanesulfinothioic acid S-(Z,E)-1-propenyl ester [MeS(O)SPn-(Z,E)]. This is the first report of the isolation of these thiosulfinates from oil-macerated garlic extract Antimicrobial activities of AIIS(O)SPn-(Z,E) and AIIS(O)SMe against Gram-pos. and neg. bacteria and yeasts were compared with 2-propene-1-sulfinothioic acid S-2-propenyl ester [AIIS(O)SAII, allicin], which is well-known as the major thiosulfinate in garlic. Antimicrobial activity of AIIS(O)SMe and AIIS(O)SPn-(Z,E) were comparable and inferior to that of allicin, resp. This result suggested that the

antimicrobial activity of 2-propene sulfinothioic acid S-alk(en)yl esters were affected by alk(en)yl groups. The order for antimicrobial activity was: allyl ≥ Me > propenyl.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 28 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1999:214244 CAPLUS

DOCUMENT NUMBER: 131:70880

TITLE: Antimicrobial properties of allicin from garlic

AUTHOR(S): Ankri, Serge; Mirelman, David

CORPORATE SOURCE: Department of Biological Chemistry, Weizmann Institute of Science, Rehovot, 76100, Israel

SOURCE: Microbes and Infection (1999), 1(2), 125-129
CODEN: MCINFS; ISSN: 1286-4579

PUBLISHER: Editions Scientifiques et Medicales Elsevier

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB A review with 30 refs. Allicin, one of the active principles of freshly crushed garlic homogenates, has a variety of antimicrobial activities. Allicin in its pure form was found to exhibit (i) antibacterial activity against a wide range of Gram-neg. and Gram-pos. bacteria, including multidrug-resistant enterotoxicogenic strains of Escherichia coli; (ii) antifungal activity, particularly against Candida albicans; (iii) antiparasitic activity, including some major human intestinal protozoan parasites such as Entamoeba histolytica and Giardia lamblia; and (iv) antiviral activity. The main antimicrobial effect of allicin is due to its chemical reaction with thiol groups of various enzymes, e.g. alc. dehydrogenase, thioredoxin reductase, and RNA polymerase, which can affect the essential metabolism of cysteine proteinase activity involved in the virulence of E. histolytica.

REFERENCE COUNT: 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 29 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1998:523821 CAPLUS

DOCUMENT NUMBER: 129:244248

ORIGINAL REFERENCE NO.: 129:49727a,49730a

TITLE: Chemistry of garlic (Allium sativum) with special reference to alliin and allicin - a review

AUTHOR(S): Singh, Sudhir S.; Agarwal, Santosh K.; Verma, Sushma; Siddiqui, M. S.; Kumar, Sushil

CORPORATE SOURCE: Central Institute of Medicinal and Aromatic Plants, Lucknow, 226 015, India

SOURCE: Journal of Medicinal and Aromatic Plant Sciences (1998), 20(1), 93-100
CODEN: JMASF6

PUBLISHER: Central Institute of Medicinal and Aromatic Plants

DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

AB This review, with 70 refs., presents a survey of the literature on chemical composition of garlic with special reference to its biol. active compds. alliin and allicin. Garlic (Allium sativum Linn.) finds use as a spice, flavoring agent and in pharmaceutical prepns. The notable activities reported in garlic include its antimicrobial, anthelmintic, antiprotozoal, antifungal, anticarcinogenic, antibacterial, antimutagenic, hypo- and hyperglycemic and insecticidal properties.

REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 30 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1998:450375 CAPLUS
DOCUMENT NUMBER: 129:169963
ORIGINAL REFERENCE NO.: 129:34373a,34376a
TITLE: Garlic: a review of its medicinal effects and indicated active compounds
AUTHOR(S): Lawson, Larry D.
CORPORATE SOURCE: Murdock Madaus Schwabe, Inc., Springville, UT, 84663, USA
SOURCE: ACS Symposium Series (1998), 691(Phytomedicines of Europe), 176-209
CODEN: ACSMC8; ISSN: 0097-6156
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 207 refs. Numerous clin. trials with garlic cloves and standardized garlic powder tablets leave little doubt that modest amts. of garlic have significant cardiovascular effects by reducing serum cholesterol, blood pressure, and platelet aggregation. Epidemiol. and animal studies strongly indicate significant anticancer effects, particularly for the intestinal tract. Furthermore, its intestinal and topical antimicrobial activities have been its longest recognized effects. Identification of the compds. essential to the activity of garlic, mostly ascribed to its high content of sulfur compds., has only been partially resolved. So far, the thiosulfinates, of which allicin is 70-80%, are the only compds. with reasonably proven activity at levels representing normal amts. of garlic consumption. They are clearly responsible for the antimicrobial effects. Several evidences also indicate that they are essential to most of the hypolipidemic, antithrombotic, antioxidant, and hypoglycemic effects of garlic, and for some of its anticancer effects. However, because the thiosulfinates are rapidly metabolized and since their active metabolites have not yet been identified, little is known about their mechanism of action. The compds. responsible for the hypotensive effects and much of the anticancer and immune effects of garlic remain unknown. Until they are known, it is best to consume garlic in whole form, fresh or dried.
REFERENCE COUNT: 208 THERE ARE 208 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 31 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:695921 CAPLUS
DOCUMENT NUMBER: 127:330470
ORIGINAL REFERENCE NO.: 127:64909a,64912a
TITLE: Lipid soluble phytochemical constituents in garlic food forms
AUTHOR(S): Weinberg, David S.
CORPORATE SOURCE: Southern Research Institute, Birmingham, AL, 35205, USA
SOURCE: Nutraceuticals: Designer Foods III: Garlic, Soy and Licorice, [Course on Designer Foods, Proceedings], 3rd, Washington, D. C., May 23-25, 1994 (1997***) , 81-86. Editor(s): Lachance, Paul A. Food & Nutrition Press: Trumbull, Conn.
CODEN: 65EOA3
DOCUMENT TYPE: Conference; General Review
LANGUAGE: English
AB A review with 22 refs. We reviewed studies that had been published on the detn. of biol. active organosulfur phytochems. in garlic food products. Such phytochems. may be produced when garlic is crushed and processed. The array of organosulfur phytochems. present in a specific garlic product

at a specific time is highly dependent on the history of the product. Garlic products that are ***antibacterial or antifungal may contain a high concn. of allicin or related alk(en)yl thiosulfinates. Garlic products that are antithrombic may contain a high concn. of (Z)-ajoene, (E)-ajoene, 2-vinyl-[4H]-1,3-dithiin, or 3-vinyl-[4H]-1,2-dithiin. Garlic products that have antioxidant or antitumor properties may contain a high concn. of diallyl disulfide or other alk(en)yl polysulfides. Analyses of samples of garlic are more informative when thoroughly validated anal. methods are used and the history of the samples is very well-documented.

L5 ANSWER 32 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:216242 CAPLUS
DOCUMENT NUMBER: 126:276532
ORIGINAL REFERENCE NO.: 126:53609a,53612a
TITLE: Research on effect of 60C0 γ ray sterilization on some nutritional components of garlic paste
AUTHOR(S): Yue, Tianli; Yuan, Yahong; Zhao, Haiying; Wan, Wenhua
CORPORATE SOURCE: Dep. Food Sci., Northwestern Agricultural Univ., Xianyang, 712100, Peop. Rep. China
SOURCE: Yingyang Xuebao (1996), 18(3), 322-326
CODEN: YYHPA4; ISSN: 0512-7955
PUBLISHER: Yingyang Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB The operation method in the disinfection unit of garlic paste with 60Co-γ-rays was established. The relationships between radiation dose and amts. of amino acid and main components (including allicin, vitamin C, protein, fat, total acid, water, total sugar) were set up through the studies.

L5 ANSWER 33 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:212844 CAPLUS
DOCUMENT NUMBER: 126:261460
ORIGINAL REFERENCE NO.: 126:50565a,50568a
TITLE: Effect of Allium spp. and herb extracts on food-borne pathogens, prokaryotic, and higher and lower eukaryotic cell lines
AUTHOR(S): Nolan, Linda L.; Mcclure, Christopher D.; Labbe, Ronald G.
CORPORATE SOURCE: School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA, 01003, USA
SOURCE: Acta Horticulturae (1996), 426(International Symposium on Medicinal and Aromatic Plants, 1995), 277-285
CODEN: AHORA2; ISSN: 0567-7572
PUBLISHER: International Society for Horticultural Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Various medicinal properties have been ascribed to natural herbs. Certain food-borne bacterial pathogens were tested for their sensitivity to allicin, a major component to garlic exts. Allicin was chemical synthesized and purified by HPLC. Its inhibitory activity against the bacteria was determined using a disk sensitivity plate assay. These pathogens included Salmonella typhimurium, Shigella dysenteriae, Clostridium perfringens, Escherichia coli, Pseudomonas aeruginosa, and Staphylococcus aureus. All were inhibited by allicin in a dose-dependent manner. In addition, protozoal parasites and mammalian cell lines, whose sensitivities to natural herbs was undetd., were tested for susceptibility to aqueous and ethanol plant exts. including nutmeg (Myristicaceae spp.), ginger (Zingiber officinale), goldenseal root (Hydrastis canadensis), garlic (Allium sativum), elephant garlic (Allium

scorodoprasum), onion (Allium cepa), and licorice (Glycyrrhiza glabra). Growth of cells of Leishmania chagasi 13 and Leishmania mexicana 227 was monitored after 72 h at 590 nm in microwell plates using a microplate reader. HeLa cells, cultured in RPMI-1640 medium with 5% fetal bovine serum, were also tested. Inhibition of HeLa and leishmanial cells was expressed as the IC50 in μg/mL. L. chagasi was more sensitive to both types of garlic than L. Mexicana. Exts. from raw onion did not inhibit growth of any of the cell lines. Licorice (G. glabra) inhibited leishmanial parasites but were not toxic to HeLa cells. All the other exts. showed varying inhibitory activities.

L5 ANSWER 34 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1997:212837 CAPLUS
DOCUMENT NUMBER: 126:242695
ORIGINAL REFERENCE NO.: 126:46865a,46868a
TITLE: Antileishmanial properties of Allium sativum extracts and derivatives
AUTHOR(S): Mcclure, Christopher D.; Nolan, Linda L.; Zatyrka, Simon A.
CORPORATE SOURCE: School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA, 01003, USA
SOURCE: Acta Horticulturae (1996), 426(International Symposium on Medicinal and Aromatic Plants, 1995), 183-191
CODEN: AHORA2; ISSN: 0567-7572
PUBLISHER: International Society for Horticultural Science
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Allicin (diallyl thiosulfinate), the active antimicrobial compound in A. sativum, demonstrates significant inhibition of leishmanial cell growth. The growth of Leishmania mexicana and L. chagasi was inhibited by introduction of pure allicin into the culture wells. Growth was measured through turbidimetric anal. HeLa and CEM-T4 human cells were indicators of mammalian cell toxicity. Allicin was much less inhibitory to the growth of either mammalian cell lines. Allyl sulfide, diallyl disulfide, diallyl trisulfide, ajoene and fresh and boiled exts. of A. sativum were also examined as potential anti-leishmanial chemotherapeutic agents.

L5 ANSWER 35 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:443429 CAPLUS
DOCUMENT NUMBER: 125:110087
ORIGINAL REFERENCE NO.: 125:20523a,20526a
TITLE: Garlic extract and allicin: broad spectrum antibacterial agents effective against multiple drug resistant strains of Shigella dysenteriae type 1 and Shigella flexneri, enterotoxigenic Escherichia coli and Vibrio cholerae
AUTHOR(S): Ahsan, Monira; Chowdhury, A. K. Azad; Islam, S. N.; Ahmed, Z. U.
CORPORATE SOURCE: Department of Pharmacy, University of Dhaka, Dhaka, 1000, Bangladesh
SOURCE: Phytotherapy Research (1996), 10(4), 329-331
CODEN: PHYREH; ISSN: 0951-418X
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effects of an aqueous extract of garlic and its active constituent allicin were tested against 40 drug resistant isolates of the strains of Shigella dysenteriae type 1 and Shigella flexneri, enterotoxigenic Escherichia coli and Vibrio cholerae. The aqueous extract and allicin were shown to have potentially significant activity

against all of the bacteria tested, while of the five standard antibiotics, only gentamicin was active. Both allicin and the aqueous extract had a broad spectrum as antibacterial agents. Allicin appeared to have the strongest activity compared with that of the extract and the standard antibiotics.

L5 ANSWER 36 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:411571 CAPLUS
TITLE: Garlic: A review of its biological effects and indicated active compounds.
AUTHOR(S): Lawson, Larry D.
CORPORATE SOURCE: Murdock Madaus Schwabe/Nature's Way Products, Inc., Springville, UT, 84663, USA
SOURCE: Book of Abstracts, 212th ACS National Meeting, Orlando, FL, August 25-29 (1996), AGFD-091. American Chemical Society: Washington, D. C. CODEN: 63BFAF
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB Garlic has been used as a medicine for more centuries and by more cultures than perhaps any other plant. It has also been extensively investigated by modern science for its composition and therapeutic properties, as attested by 1300 research publications on its medicinal effects and 1100 on its chemical and anal. Numerous clin. trials with garlic cloves and standardized garlic powder tablets leave little doubt that modest amts. of garlic have significant cardiovascular effects by reducing serum cholesterol, serum triglycerides, blood pressure, and platelet aggregation. Epidemiol. and animal studies strongly indicate significant anticancer effects, particularly for the intestinal tract. Furthermore, its intestinal and topical antimicrobial activity has been its longest recognized effect. Identification of the active compds. of garlic, while mostly ascribed to its high content of sulfur compds., has been complicated by the complex chemical involved when various garlic prepns. are made. Allicin and related thiosulfinates have been clearly shown to be responsible for the antimicrobial effects. Several evidences indicate that allicin is also mainly responsible for the hypolipidemic, antithrombotic, antioxidant, and hypoglycemic effects of garlic as well as for about half of its anticancer effects; however, little is still known about its metabolic fate and mechanism of action. The compds. responsible for its hypotensive effects (possibly the γ-glutamyl-S-propenylcysteines) and for much of its anticancer and immune effects remain unknown.

L5 ANSWER 37 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1996:147302 CAPLUS
DOCUMENT NUMBER: 124:255558
ORIGINAL REFERENCE NO.: 124:47237a,47240a
TITLE: Isolation and characterization of bacteria resistant to the antimicrobial activity of garlic
AUTHOR(S): Kyung, Kyu Hang; Park, Kyung Suk; Kim, Youn Soon
CORPORATE SOURCE: Dept. of Food Science, Sejong Univ., Seoul, 133-747, S. Korea
SOURCE: Journal of Food Science (1996), 61(1), 226-9 CODEN: JFDSAZ; ISSN: 0022-1147
PUBLISHER: Institute of Food Technologists
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Twenty-six bacteria were isolated from garlic (Allium sativum) and characterized. They all were identified as Leuconostoc mesenteroides subsp. mesenteroides. All the isolates were resistant to antimicrobial activity of garlic and grew or survived in TSB with 10% garlic extract while other bacteria and yeasts from the laboratory collection

were killed when 1-2% garlic extract was in the culture media. Garlic isolates were also more tolerant than common laboratory strains to the toxic effect of Me methanethiosulfonate, a thiol inhibitor similar to allicin. This is the first report of the isolation of naturally occurring bacteria resistant to antimicrobial activity of garlic.

L5 ANSWER 38 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1995:766041 CAPLUS
DOCUMENT NUMBER: 123:167996
ORIGINAL REFERENCE NO.: 123:29991a,29994a
TITLE: Light and electron microscopic immunocytochemical localization of two major proteins in garlic bulb
AUTHOR(S): Wen, G. Y.; Mato, A.; Wisniewski, H. M.; Malik, M. N.; Jenkins, E. C.; Sheikh, A. M.; Kim, K. S.
CORPORATE SOURCE: New York State Inst. Basic Res. Developmental Disabilities, Staten Island, NY, 10314, USA
SOURCE: Journal of Cellular Biochemistry (1995), 58(4), 481-9
CODEN: JCEBD5; ISSN: 0730-2312
PUBLISHER: Wiley-Liss
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Garlic is known as a potent spice and a medicine with broad therapeutic properties ranging from antibacterial to anticancer, antidiabetic, and anticoagulant. Two major proteins of 40 kDa and 14 kDa constituting approx. 96% of total garlic proteins have been recently purified at the Institute. This immunocytochem. and ultrastructural study revealed that the 40 kDa protein was localized in the parenchyma sheath cells (PSC) of garlic bulbs, whereas the 14 kDa protein was present in the cortical cells (CC). Immunogold electron microscopy study indicated that the 40 kDa protein was specifically localized in the globular granules of the cytoplasmic area of PSC. Each globular granule was amorphous and homogenous with membrane limiting its outermost layer. The yellowish color of PSC in freshly cut slices of garlic bulb suggested that PSC may have sulfur-containing compds. such as allicin, the primary contributor of the pungency and medicinal properties of garlic. Ellman's reagent test quant. revealed that there were 17.8 mol sulfhydryl (SH)/mL of 40 kDa garlic protein. Microtubule tubulin in mitotic figures from PHA-stimulated human short-term whole blood cultures reacted strongly with antitubulin antibody but reacted neg. with anti-40 kDa garlic protein antibodies and therefore was not related to the 40 kDa garlic protein immunocytochem.

L5 ANSWER 39 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1991:647549 CAPLUS
DOCUMENT NUMBER: 115:247549
ORIGINAL REFERENCE NO.: 115:41885a,41888a
TITLE: Antimicrobial effects of Allium sativum L. (garlic), Allium ampeloprasum L. (elephant garlic), and Allium cepa L. (onion), garlic compounds and commercial garlic supplement products
AUTHOR(S): Hughes, Bronwyn G.; Lawson, Larry D.
CORPORATE SOURCE: Dep. Res. and Dev., Springville, UT, 84663, USA
SOURCE: Phytotherapy Research (1991), 5(4), 154-8
CODEN: PHYREH; ISSN: 0951-418X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Diallylthiosulfinate (allicin), methylallylthiosulfinate, and allylmethylthiosulfinate found in aqueous garlic clove and powder homogenates showed in vitro antibacterial and antifungal activities while garlic polar compds., including alliin, did not. E/Z-ajoene, a minor but

water-soluble transformation product of allicin found in vegetable oil-macerates of garlic, demonstrated anticandidal activity. Garlic showed greater antibacterial and antifungal activities than a number of onion types. Garlic and elephant garlic clove homogenates demonstrated similar activity. The anticandidal activities of com. available garlic supplement products corresponded in general to the activities known for the chemical compds. found in the products.

L5 ANSWER 40 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1989:36674 CAPLUS
DOCUMENT NUMBER: 110:36674
ORIGINAL REFERENCE NO.: 110:6061a,6064a
TITLE: In vitro mechanism of inhibition of bacterial cell growth by allicin
AUTHOR(S): Feldberg, Ross S.; Chang, Stephen C.; Kotik, Alan N.; Nadler, Marcus; Neuwirth, Zeev; Sundstrom, David C.; Thompson, Nathan H.
CORPORATE SOURCE: Dep. Biol., Tufts Univ., Medford, MA, 02155, USA
SOURCE: Antimicrobial Agents and Chemotherapy (1988), 32(12), 1763-8
CODEN: AMACCQ; ISSN: 0066-4804
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Diallyl thiosulfinate (allicin) is the agent found in garlic which is responsible for the antibacterial and antifungal activity of exts. of this plant. The effect of bacteriostatic concns. of allicin (0.2 to 0.5 mM) on the growth of Salmonella typhimurium revealed a pattern of inhibition characterized by: (1) a lag of approx. 15 min between addition of allicin and onset of inhibition, (2) a transitory inhibition phase whose duration was proportional to allicin concentration and inversely proportional to culture d., (3) a resumed growth phase which showed a lower rate of growth than in uninhibited controls, and (4) an entry into stationary phase at a lower culture d. Whereas DNA and protein syntheses showed a delayed and partial inhibition by allicin, inhibition of RNA synthesis was immediate and total, suggesting that this is the primary target of allicin action.

L5 ANSWER 41 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1988:626538 CAPLUS
DOCUMENT NUMBER: 109:226538
ORIGINAL REFERENCE NO.: 109:37405a,37408a
TITLE: Mode of action of essential oil components on whole cells of bacteria and fungi in plate tests
AUTHOR(S): Knobloch, K.; Pauli, A.; Iberl, B.; Weis, N.; Weigand, H.
CORPORATE SOURCE: Inst. Bot. Pharm. Biol., Univ. Erlangen-Nuernberg, Erlangen, D-8520, Fed. Rep. Ger.
SOURCE: Bioflavour '87, Proc. Int. Conf. (1988), Meeting Date 1987, 287-99. Editor(s): Schreier, Peter. de Gruyter: Berlin, Fed. Rep. Ger.
CODEN: 56HWA4
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Many terpenoids were tested in vitro against whole cells of bacteria and fungi. The better the solubility of the terpenoid the more pronounced the inhibition of growth. Among water-soluble compds., vanillin, piperenol, and camphor were not active whereas the monoarom. ester borneol acetate revealed antiseptic effects. Possible mechanisms of action and structure-activity relations are discussed.

L5 ANSWER 42 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1988:201780 CAPLUS
DOCUMENT NUMBER: 108:201780
ORIGINAL REFERENCE NO.: 108:33081a,33084a
TITLE: Antibacterial substance in commercial Allium plants
AUTHOR(S): Akema, Riichiro; Okazaki, Norio; Takizawa, Kinjiro
CORPORATE SOURCE: Dep. Bacteril. Pathol., Kanagawa Prefect. Public Health Lab., Yokohama, 241, Japan
SOURCE: Kanagawa-ken Eisei Kenkyusho Kenkyu Hokoku (1987), (17), 39-40
CODEN: KEKHB8; ISSN: 0303-0350
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
AB Antibacterial substances contained in garlic (Allium sativum), Chinese chives (A. tuberosum), onions (A. cepa), and Japanese bunching onions (A. fistulosum) were investigated. Aqueous exts. of garlic and chives showed antibacterial activity against Escherichia coli and Micrococcus luteus, but those of onion and bunching onion did not. The antibacterial substance in garlic and chives may be enzymically developed allicin (I) from alliin. I isolated from garlic or chives was stable to heating in media of pH 2 and 7, but not pH 9.

L5 ANSWER 43 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1988:52691 CAPLUS
DOCUMENT NUMBER: 108:52691
ORIGINAL REFERENCE NO.: 108:8737a,8740a
TITLE: Antibacterial activity of Allium species
AUTHOR(S): Didry, N.; Pinkas, M.; Dubreuil, L.
CORPORATE SOURCE: Lab. Matiere Med. Bacteriol., Fac. Pharm., Lille, Fr.
SOURCE: Pharmazie (1987), 42(10), 687-8
CODEN: PHARAT; ISSN: 0031-7144
DOCUMENT TYPE: Journal
LANGUAGE: French
AB Garlic, onion, and shallot exts. were tested for antimicrobial activity against pathogenic aerobic and anaerobic bacteria. Garlic showed the greatest activity; garlic-antibiotic combinations were synergistic against Acinetobacter calcoaceticus. Comparison of MICs of vegetable exts. with MICs of allicin indicate that the active constituent is probably not allicin alone.

L5 ANSWER 44 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1987:512502 CAPLUS
DOCUMENT NUMBER: 107:112502
ORIGINAL REFERENCE NO.: 107:18183a,18186a
TITLE: Inhibitory effects of essential oil components on growth of food-contaminating fungi
AUTHOR(S): Pauli, Alexander; Knobloch, Karl
CORPORATE SOURCE: Inst. Bot. Pharm. Biol., Univ. Erlangen-Nuernberg, Erlangen, D-8520, Fed. Rep. Ger.
SOURCE: Zeitschrift fuer Lebensmittel-Untersuchung und -Forschung (1987), 185(1), 10-13
CODEN: ZLUFAR; ISSN: 0044-3026
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The antifungal activity of 17 components of essential oils were evaluated using a paper-disk method. The substances investigated are structurally related to eugenol. Equimolar amts. were tested on >10 fungal strains known to contaminate food. Isoeugenol, cinnamaldehyde, carvacrol, eugenol and thymol revealed the strongest antifungal activity. The most resistant strain appeared to be Penicillium verrucosum var. cyclopium, and the most sensitive was P. viridicatum. Some of the structural effects were considered, including a free hydroxyl group in connection with an alkyl

substituent which seemed to represent an especially active configuration of phenolic compds. and which rendered antimicrobial activity.

L5 ANSWER 45 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1984:591095 CAPLUS
DOCUMENT NUMBER: 101:191095
ORIGINAL REFERENCE NO.: 101:28939a,28942a
TITLE: A facile synthesis of S-(1-chloroalkyl) alkanesulfonothioates
AUTHOR(S): Freeman, Fillmore; Keindl, Monica C.
CORPORATE SOURCE: Dep. Chem., Univ. California, Irvine, CA, 92717, USA
SOURCE: Synthesis (1984), (6), 500-2
CODEN: SYNTBF; ISSN: 0039-7881
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 101:191095
AB Mixts. of RCH2SO2SCHClR (R = H, C1-7 n-alkyl), useful as bactericides and fungicides, and the resp. RCH2SO2SCH2R were prepared from RCH2SOCl. Thus, MeSOCl in DMF was stirred 24 h at 22-24° to give MeSO2SCH2Cl (major product) and MeSO2SMe.

L5 ANSWER 46 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1983:221761 CAPLUS
DOCUMENT NUMBER: 98:221761
ORIGINAL REFERENCE NO.: 98:33617a,33620a
TITLE: Study and preparation of allicin mircocapsule
AUTHOR(S): Shen, Lianci; Wang, Yuanyu; Feng, Lihong
CORPORATE SOURCE: Inst. Tradit. Chin. Med., Acad. Tradit. Chin. Med., Peop. Rep. China
SOURCE: Zhongcaoyao (1983), 14(4), 161-4
CODEN: CTYAD8; ISSN: 0253-2670
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB Antimicrobial allicin [539-86-6] was microencapsulated with a material containing gelatin and gum arabic and filled into gelatin capsules to mask the unpleasant odor and to increase the stability. When samples were kept at room temperature in darkness for 6 mo, encapsulated allicin was more stable than unprocessed allicin. Stds. for quality control of the preparation were established.

L5 ANSWER 47 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1983:31345 CAPLUS
DOCUMENT NUMBER: 98:31345
ORIGINAL REFERENCE NO.: 98:4893a,4896a
TITLE: Changes in the antibacterial activity of thiosulfonate esters during storage
AUTHOR(S): Kulikovskaya, M. D.; Gubanova, N. Ya.
CORPORATE SOURCE: Inst. Mikrobiol. Virusol., Kiev, USSR
SOURCE: Mikrobiologicheskii Zhurnal (1978-1993) (1982), 44(6), 87-9
CODEN: MZHUDX; ISSN: 0201-8462
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Et ethanethiosulfonate and Bu ethanethiosulfonate at 1-20 μg/mL inhibited a wide variety of phytopathogenic bacteria, including Xanthomonas, Erwinia, Pseudomonas, and Corynebacterium species. When kept in alc. (1.0% solution) at different temps. (18-20° and 5-8°), the antibacterial activity of both esters was not changed for 9 mo, but decreased 2.0-2.5-fold after 12 mo.

L5 ANSWER 48 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1983:12855 CAPLUS
Correction of: 1982:540124
DOCUMENT NUMBER: 98:12855
Correction of: 97:140124
ORIGINAL REFERENCE NO.: 98:2069a,2072a
TITLE: Use of phytoncides in the protection of plants against bacterial disease
AUTHOR(S): Kulikovskaya, M. D.
CORPORATE SOURCE: Inst. Mikrobiol. Virusol, Kiev, USSR
SOURCE: Fitontsidy: Rol Biogeotsenozakh, Znach. Med., Mater. Soveshch., 8th (1981), Meeting Date 1979, 306-10. Editor(s): Aizenman, B. E. Izd. Naukova Dumka: Kiev, USSR.
CODEN: 48CDAR
DOCUMENT TYPE: Conference
LANGUAGE: Russian
AB Plant prepns. and synthetic allicin analogs are divided into 3 groups. The prepns. of the 1st group combine activities of plant growth stimulation with inhibition or suppression of pathogenic bacteria. These include arenarin, imanin, allicin analogs, etc. The 2nd group concomitantly stimulates plant growth and expansion of bacterial infection, e.g. kansatin. The prepns. of the 3rd group, such as nupharin, combine a high antibacterial activity, shown at 1-2 μg/mL, with phytotoxicity for the host plant.

L5 ANSWER 49 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1982:540124 CAPLUS
DOCUMENT NUMBER: 97:140124
ORIGINAL REFERENCE NO.: 97:23239a,23242a
TITLE: Use of phytoncides in the protection of plants against bacterial disease
AUTHOR(S): Kulikovskaya, M. D.
CORPORATE SOURCE: Inst. Mikrobiol. Virusol., Kiev, USSR
SOURCE: Fitontsidy: Rol Biogeotsenozakh, Znach. Med., Mater. Soveshch., 8th (1981), Meeting Date 1979, 306-10. Editor(s): Aizenman, B. E. Izd. Naukova Dumka: Kiev, USSR.
CODEN: 48CDAR
DOCUMENT TYPE: Conference
LANGUAGE: Russian
AB Plant prepns. and synthetic allicin analogs are divided into 3 groups. The prepns. of the 1st group combine activities of plant growth stimulation with inhibition or suppression of pathogenic bacteria. These include arenarin [8076-32-2], imanin [11113-64-7], allicin analogs, etc. The 2nd group concomitantly stimulates plant growth and expansion of bacterial infection, e.g. kansatin [83046-65-5]. The prepns. of the 3rd group, such as nupharin [1400-60-8], combine a high antibacterial activity, shown at 1-2 μg/mL, with phytotoxicity for the host plant.

L5 ANSWER 50 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1980:56998 CAPLUS
DOCUMENT NUMBER: 92:56998
ORIGINAL REFERENCE NO.: 92:9459a,9462a
TITLE: Hydantoin derivatives of S-alk(en)yl-L-cysteine-S-oxides. Part V. L-5-Alk(en)ylthiomethylhydantoin-(±)-S-oxides: non-enzymical precursors of fresh flavors of Allium plants
AUTHOR(S): Tahara, Satoshi; Mizutani, Junya
CORPORATE SOURCE: Fac. Agric., Hokkaido Univ., Sapporo, 060, Japan

SOURCE: Agricultural and Biological Chemistry (1979), 43(10), 2021-8
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The antimicrobial L-5-alk(en)ylthiomethylhydantoin (±)-S-oxides (RHSO) decompose by a β-elimination reaction under physiol. conditions to give alk(en)yl thiosulfinates as antimicrobial principles. The resemblance of the reaction and reaction products to those of the alliin-alliinase system prompted examination of the evaluation of RHSO as nonenzymic precursors of allium flavors. The volatiles arising out of a mixture of L-5-allylthiomethylhydantoin S-oxide (AHSO) [71595-49-8] and L-5-methylthiomethylhydantoin S-oxide (MHSO) [60890-88-2] were compared with those of comminuted garlic. Both flavors were organoleptically similar, and the gas chromatog. and mass spectroscopic evidences are shown. Use of AHSO as a standard compound in qual. anal. of alliin [556-27-4] or allicin [539-86-6] is also described.

L5 ANSWER 51 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1979:517871 CAPLUS
DOCUMENT NUMBER: 91:117871
ORIGINAL REFERENCE NO.: 91:18949a,18952a
TITLE: Hydantoin derivatives of S-alk(en)yl-L-cysteine-S-oxides. III. Antimicrobial L-5-alk(en)ylthiomethylhydantoin-(±)-S-oxides: mode of action
AUTHOR(S): Tahara, Satoshi; Miura, Yuzo; Mizutani, Junya
CORPORATE SOURCE: Fac. Agric., Hokkaido Univ., Sapporo, 060, Japan
SOURCE: Agricultural and Biological Chemistry (1979), 43(5), 919-24
CODEN: ABCHA6; ISSN: 0002-1369
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The mode of action of antimicrobial L-5-alk(en)ylthiomethylhydantoin-(±)-S-oxides (I) was investigated. The antimicrobial activity of I was suppressed by the addition of SH compds. I decomposed easily under physiol. conditions to give 5-methylenehydantoin and allicin homologs known as antimicrobial principles of Allium plants. The labilities of I and I analogs were closely correlated with their antimicrobial activities. Furthermore, almost all of the activity of parent I was accounted for by that of the decomposition products.

L5 ANSWER 52 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1977:594680 CAPLUS
DOCUMENT NUMBER: 87:194680
ORIGINAL REFERENCE NO.: 87:30739a,30742a
TITLE: Isolation, purification, identification, synthesis, and kinetics of activity of the anticandidal component of Allium sativum, and a hypothesis for its mode of action
AUTHOR(S): Barone, Frank E.; Tansey, Michael R.
CORPORATE SOURCE: Dep. Microbiol., Indiana Univ., Bloomington, IN, USA
SOURCE: Mycologia (1977), 69(4), 793-825
CODEN: MYCOAE; ISSN: 0027-5514
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An aqueous extract of bulbs of garlic (A. sativum) had antifungal activity toward clin. isolates of Candida albicans. The chromatog. behavior of the

anticandidal activity, its approx. mol. weight (<700), its stability in acid, and its inactivation by heat or basic solns. were similar to the characteristics of synthetic allicin [539-86-6], the known antibacterial principle of garlic. The activities of both allicin and the garlic extract were inhibited by a sulfhydryl compound (L-cysteine) or a reducing compound (dithioerythritol). The kinetics of inhibition of C. albicans by the garlic extract are reported for different concns. of the preparation Allicin appears to be the primary, but possibly not the only, anticandidal component of garlic extract A proposed model for the activity of allicin is based on its disruption of cell metabolism by means of its effects on sulfhydryl groups.

L5 ANSWER 53 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1977:434276 CAPLUS
DOCUMENT NUMBER: 87:34276
ORIGINAL REFERENCE NO.: 87:5381a,5384a
TITLE: Use of some antibiotics of vegetal origin for disinfecting silkworm eggs
AUTHOR(S): Kuz'menko, N. V.; Aretinskaya, T. B.
CORPORATE SOURCE: Ukr. S-kh. Akad., Kiev, USSR
SOURCE: Nauchnye Trudy USKhA (1976), 161, 104-6
CODEN: NPRUAL; ISSN: 0451-8888
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB A 15-min immersion of silkworm eggs in 1/500 novoimanin [11004-82-3] increased the survival of caterpillars to pupation from 20.85 to 53.8%, and increased the cocoon weight by 4.2% and silk content by 3.8%. Pseudoallicin 150 [682-91-7] at 1/500 and pseudoallicin 151 [62887-79-0] at 1/1000 increased the survival to 30.85 and 40.35%, resp., but decreased the cocoon weight and silk content.

L5 ANSWER 54 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1974:458683 CAPLUS
DOCUMENT NUMBER: 81:58683
ORIGINAL REFERENCE NO.: 81:9327a,9330a
TITLE: Effect of sulfonothioate esters on bacteria and fungi
AUTHOR(S): Boldyrev, B. G.; Aizenman, B. E.; Zelepukha, S. I.; Shvaiger, M. O.; Mandrik, T. P.
CORPORATE SOURCE: L'vov. Politekh. Inst., Lvov, USSR
SOURCE: Fiziologicheski Aktivnye Veshchestva (1966-1992) (1973), 5, 24-32
CODEN: FAVUAI; ISSN: 0533-1153
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB S-Me methanesulfonothioate [2949-92-0] and S-2-hydroxyethyl ethanesulfonothioate [13700-09-9] were the most active antimicrobial agents of 17 alkyl and 6 aryl sulfonothioate esters tested against 3 bacterial and 7 fungal species. The aryl esters were less active against bacteria than the alkyl esters.

L5 ANSWER 55 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1973:515060 CAPLUS
DOCUMENT NUMBER: 79:115060
ORIGINAL REFERENCE NO.: 79:18687a,18690a
TITLE: Synthesis, structure, and properties of thiosulfonate esters bearing substituents in the ester group
AUTHOR(S): Boldyrev, B. G.; Vid, L. V.; Khovalko, L. M.; Voloshin, G. A.; Kovbuz, M. A.
CORPORATE SOURCE: USSR
SOURCE: Khim. Seraorg. Soedin., Soderzh. Neftyakh Nefteprod. (1972), 9, 282-6
From: Ref. Zh., Khim. 1973, Abstr. No. 12Zh158

DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Reaction of RSO2SK with R1CH2Br in aqueous Me2CO at .apprx.20° gave the following RSO2SCH2R1 (I) (R, R1 = Me, ClCH2; Et, ClCH2; Pr, ClCH2; Ph, ClCH2; Me, HOCH2; Et, HOCH2; Pr, HOCH2; Ph, HOCH2; Me, CO2H; Et, CO2H; Ph, CO2H; and p-AcNHC6H4, CO2H. Reaction of RSO2SK with BrCH2CH2NH2.HBr gave the following RSO2SCH2CH2NH2.HBr (R and % yield given): Me, 45.5; Et, 50.8; and Pr, 56.1; the free bases with BzH gave RSO2SCH2CH2N:CHPh (R and % yield given): Et, 20.5; and Pr, 25.4. ArSO2SK and BrCH2CH2NH2 gave ArSO2SH.H2N(CH2)2Br (Ar and % yield given): Ph, 70.1; and p-AcNHC6H4, 69.2; these with BzH gave 29.5% BrCH2CH2N:CHPh. I (R1 = ClCH2) had antifungal activity; I (R1 = CH2OH) had antimicrobial activity, especially against gram-neg. bacteria.

L5 ANSWER 56 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1973:53849 CAPLUS
DOCUMENT NUMBER: 78:53849
ORIGINAL REFERENCE NO.: 78:8521a,8524a
TITLE: Use of an allicin 276 analog in combination with preparations 150 and 152 to control angular leaf spot of cucumbers
AUTHOR(S): Bel'tyukova, K. I.; Kulikovskaya, M. D.; Korobko, A. P.
CORPORATE SOURCE: Inst. Mikrobiol. Virusol., Kiev, USSR
SOURCE: Fitontsidy, Mater. Soveshch., 6th (1972), Meeting Date 1969, 79-82. Editor(s): Aizenman, B. E. "Naukova Dumka": Kiev, USSR. CODEN: 25ZQA2
DOCUMENT TYPE: Conference
LANGUAGE: Russian
AB Cucumber seeds treated with O-methyl methanesulfonothioate (preparation 276) [38473-56-2] at 1:2500-10,000 showed improved germinating ability and produced taller seedlings than did controls. Combinations of preparation 276 with o-ethyl ethanesulfonothioate (preparation 150) [38473-54-0] or o-butyl ethanesulfonothioate (preparation 152) [38473-55-1] at 1:2500 each, applied to the seeds, was effective against angular leaf spot infection (Pseudomonas lachrymans).

L5 ANSWER 57 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1972:42583 CAPLUS
DOCUMENT NUMBER: 76:42583
ORIGINAL REFERENCE NO.: 76:6871a,6874a
TITLE: Thiosulfonic acid esters as new preservatives for protecting fruits and vegetables from spoiling during storage
AUTHOR(S): Boldyrev, B. G.; Grimm, A. I.; Nikitina, K. V.
CORPORATE SOURCE: L'vov. Politekh. Inst., Lvov, USSR
SOURCE: Fiziologicheski Aktivnye Veshchestva (1966-1992) (1971), No. 3, 148-54 CODEN: FAVUAI; ISSN: 0533-1153
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB When tested on bacterial species and 13 species of fungi, the bacteriocidal effects of several alkylthiosulfonic acid methyl esters were higher than those of the corresponding trichloromethyl esters, whereas the fungicidal effects of the latter were higher than those of the former. Et ethanethiosulfonate [682-91-7] and butyl ethanethiosulfonate [1113-19-5] were good preservatives for apples, melons and citrus fruits, p-aminophenyl thiosulfanilate [1146-45-8] for potatoes, and thiosulfanilate [16599-40-9] and Et acetylthiosulfanilate [1141-90-8] for tomatoes during storage.

L5 ANSWER 58 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1971:528761 CAPLUS
DOCUMENT NUMBER: 75:128761
ORIGINAL REFERENCE NO.: 75:20319a,20322a
TITLE: Antimicrobic properties of some pseudoallicin analogs in vitro
AUTHOR(S): Skorobogat'ko, T. I.
CORPORATE SOURCE: Kiev, USSR
SOURCE: Antibiotiki (Kiev) (1970), No. 5, 63-70
CODEN: ANBKAQ; ISSN: 0301-5408
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Four esters of thiosulfonic acid numbered 187, 283, 290, and 324 (not further identified) were, in general effective bactericides and fungicides, at 2-50 μg/ml.

L5 ANSWER 59 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1970:517195 CAPLUS
DOCUMENT NUMBER: 73:117195
ORIGINAL REFERENCE NO.: 73:19069a,19072a
TITLE: Antimicrobial properties of garlic
AUTHOR(S): Kabelik, Jan
CORPORATE SOURCE: Reg. Admin. Public Health, Centre Hyg. Epidemiol., Olemouc, Czech.
SOURCE: Pharmazie (1970), 25(4), 266-70
CODEN: PHARAT; ISSN: 0031-7144
DOCUMENT TYPE: Journal
LANGUAGE: German
AB The antibiotic content of garlic varies according to the part of the plant (most in brood bulbs, less in true bulbs (garlic cloves), and least in stems and leaves), strain, origin, kind of cultivation, and vegetative maturity. Storage reduces this content but this varies considerably with storage conditions and type of garlic. Usually strong activity was noted against pathogenic yeasts, especially Candida species, even though garlic is rarely used in candidiases and other skin diseases, where less effective agents are commonly used. The antibiotic activity was 10-100 times greater in dermatophytes and yeasts than on bacteria. Using the modified Oxford diffusion method (filter paper discs), garlic (in 1:5 and 1:10 exts. in 2% AcOH, prepared after leaving extract stand at room temperature for 24 hr) was the most effective agent tried against C. albicans; it was also very active against C. tropicalis and C. pseudoutropicalis, but somewhat less active against C. krusei. Parallel tests with nystatin, gentian violet, methylene blue, and 5 other antifungal agents showed garlic superior to all others, including allicin. Best results were obtained in combination with oxidizing agents (H_2O_2), which aid the action of garlic due to its high content of catalase. The garlic bulb also contains soluble carbohydrates which aid in the growth of the bacteria, and decrease the antibiotic activity. These became more pronounced after storage for 6 months or more. The activity of the allicin in garlic was decreased by reduction It is also inactivated by cysteine and thiosulfate.

L5 ANSWER 60 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1969:490199 CAPLUS
DOCUMENT NUMBER: 71:90199
ORIGINAL REFERENCE NO.: 71:16759a,16762a
TITLE: Antimicrobial properties and possible ways of using thiosulfonic acid esters
AUTHOR(S): Boldyrev, B. G.
CORPORATE SOURCE: L'vov. Politekh. Inst., L'vov., USSR
SOURCE: Khimiya Seraorganicheskikh Soedinenii,

Soderzhashchikhsya v Neftyakh i Nefteproduktakh (1968), 8, 44-50
CODEN: KSSBAP; ISSN: 0368-6876
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB Various derivs. of the following compds. were tested as antimicrobial and antifungal agents: AlkSO2SAlk (I), ArSO2SAlk (Ii), AlkSO2SC6H4X (III), XC6H4SO2SC6H4X (IV), AlkSO2S(CH2)nSSO2Alk (V). Alkyl esters of alkanethiosulfonic acids (I), especially iso-Pr and iso-Bu ones, had the highest antibacterial activity. Fungicide activity was highest in Me esters. Derivs. of II (Ar = C6H5, 5-NH2C10H6, or C14H9) had a lower biol. activity, with the exception of naphthalene derivs. (Ar = 1-C10H7). Derivs. of III (X = H, Cl, MeO, NO2) had no activity against gram-neg. bacteria and their fungicidal activity was low, but they were very active against gram-pos. bacteria. Derivs. of IV (X = H, Cl, MeO, NO2, MeCONH, NH2) had a similar biol. spectrum like derivs. of III. Derivs. of V had a generally low biol. activity. All derivs. had tuberculostatic activity in vitro; I derivs. were most active. In further expts., seeds of various crops was treated with derivs. of I. The number of diseased plants was decreased which in turn led to a better yield of corn, legumes, and cabbage. CC13 derivs. of I had the highest fungicidal activity.

L5 ANSWER 61 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1962:48247 CAPLUS
DOCUMENT NUMBER: 56:48247
ORIGINAL REFERENCE NO.: 56:9177f-g
TITLE: Stability of allicin and alliin present in garlic
AUTHOR(S): Sreenivasamurthy, V.; Sreekantiah, K. R.; Johar, D. S.
CORPORATE SOURCE: Central Food Technol. Research Inst., Mysore
SOURCE: Journal of Scientific & Industrial Research (1961), 20C, 292-5
CODEN: JSIRAC; ISSN: 0022-4456
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Stability of allicin and alliin in aqueous exts. of garlic and in dehydrated garlic powder during storage at different temps. was studied. Allicin in the aqueous extract of garlic looses its antibacterial activity during storage. Alliin, in aqueous extract as well as in dehydrated garlic powder, remains stable during storage over long periods.

L5 ANSWER 62 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1960:82514 CAPLUS
DOCUMENT NUMBER: 54:82514
ORIGINAL REFERENCE NO.: 54:15754h-i,15755a
TITLE: Effect of regional variability in garlic on the quality of garlic powder
AUTHOR(S): Singh, L. J.; Pruthi, J. S.; Sreenivasamurthy, V.; Lal, Girdhari
SOURCE: Food Science (Mysore) (1959), 8, 431-6
CODEN: FDSCA4; ISSN: 0532-0968
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB At 1:1, 1:2, and 1:3 dilns. there was a fairly good linear relation between log of garlic powder concentration and diameter of zone of inhibition of Staphylococcus aureus. There was no significant difference in allicin or its stability in aqueous exts. of powder or sugar-coated tablets at varying soaking periods ranging from 2 to 24 hrs. Moisture, allyl sulfide, total S, and antibacterial activity of cloves,

skin of cloves, and outer papery skin of bulbs; and flavor and color comparison are reported on garlic from 3 regions in India. There was considerable batch-to-batch variation in effect of bulb size on pungency and antibacterial activity.

L5 ANSWER 63 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1960:82511 CAPLUS
DOCUMENT NUMBER: 54:82511
ORIGINAL REFERENCE NO.: 54:15754e-f
TITLE: Determination of the critical temperature of dehydration of garlic
AUTHOR(S): Pruthi, J. S.; Singh, L. J.; Lal, Girdhari
SOURCE: Food Science (Mysore) (1959), 8, 436-40
CODEN: FDSCA4; ISSN: 0532-0968
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Fresh garlic (62.3% moisture) and dried flakes (5.5% moisture) were stored in sealed cans 4 and 8 hrs. at temps. ranging from 30 to 70°. and results on antibacterial activity, % retention of allyl sulfide and of allicin, and color and flavor deterioration are reported. The safe limit for product temperature during dehydration appeared to be 40-50° for fresh garlic and 60° for dried or nearly dried garlic.

L5 ANSWER 64 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1960:51729 CAPLUS
DOCUMENT NUMBER: 54:51729
ORIGINAL REFERENCE NO.: 54:10180f-g
TITLE: Thermal stability of alliinase and enzymatic regeneration of flavor in odorless garlic powder
AUTHOR(S): Pruthi, J. S.; Singh, L. J.; Lal, Girdhari
CORPORATE SOURCE: Central Food Technol. Research Inst., Mysore
SOURCE: Current Science (1959), 28, 403-4
CODEN: CUSCAM; ISSN: 0011-3891
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB The enzyme alliinase (I), responsible for the flavor of garlic by cleaving the flavor precursor alliinase (II), was inactivated by blanching fresh garlic cloves in boiling H2O for as little as 2.5 min. Inactivation was measured by the decrease in antibacterial action of allicin, a cleavage product of II, which is an antibiotic. When odorless garlic powder prepared by blanching, dehydrating, and grinding the vegetable was treated with a crude preparation of I, both the flavor and antibacterial properties were restored.

L5 ANSWER 65 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1959:73101 CAPLUS
DOCUMENT NUMBER: 53:73101
ORIGINAL REFERENCE NO.: 53:13272d-e
TITLE: Antibiotic substance from Cannabis sativa and its effect on phytopathogenic bacteria
AUTHOR(S): Bel'tyukova, K. I.
SOURCE: Antibiotiki, Akad. Nauk Ukr. S.S.R., Inst. Mikrobiol. (1958) 49-51
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Antibacterial activity of a substance obtained from C. sativa (I) was shown expt1. on a number of phytopathogenic bacteria. Most susceptible were Corynebacterium michiganense and C. flaccumfaciens. When I is planted close to kidney bean (II) or kok-saghyz (Taraxacum kok-saghyz) (III) the inhibitory material from I was observed in the developing bacteroids of II and III.

L5 ANSWER 66 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1959:68136 CAPLUS
DOCUMENT NUMBER: 53:68136
ORIGINAL REFERENCE NO.: 53:12402h-i
TITLE: Antimicrobial properties of the analogs of pseudoallicin
AUTHOR(S): Drobot'ko, V. G.; Aizenman, B. E.; Zelepukha, S. I.
SOURCE: Antibiotiki, Akad. Nauk Ukr. S.S.R., Inst. Mikrobiol. (1958) 61-8
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB cf. C.A. 53, 8229h. Analogs of pseudoallicin, ethers of thiosulfonic acid, having common formula RSO2SR' (R and R' could be Me, Et, or Pr radicals), display a significant antimicrobial activity. In regard to allicin they are, in most cases, quite stable. The activity of a number of prepns. was not effected by blood serum. The toxicity picture was varied.

L5 ANSWER 67 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1959:45503 CAPLUS
DOCUMENT NUMBER: 53:45503
ORIGINAL REFERENCE NO.: 53:8229h
TITLE: Antimicrobial properties of pseudoallicin analogs
AUTHOR(S): Drobot'ko, V. G.; Aizenman, B. Yu.; Zelepukha, S. I.
CORPORATE SOURCE: Inst. Microbiol., Kiev
SOURCE: Fitontsidy, ikh Rol v Prirode. Izbrannye Doklady 2-go Soveshchan. po Probleme Fitontsidov, Leningrad. Gosudarst. Univ. im. A. A. Zhdanova, Kiev (1957), Volume Date 1956 141-2
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Summary of several previous reports.

L5 ANSWER 68 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1959:12417 CAPLUS
DOCUMENT NUMBER: 53:12417
ORIGINAL REFERENCE NO.: 53:2369d-e
TITLE: Antimicrobiological substances in cultured plants and their significance for the plants and for the nutrition of man and animals
AUTHOR(S): Virtanen, A. I.
CORPORATE SOURCE: Biochemisches Inst., Helsinki
SOURCE: Schweizerische Zeitschrift fuer Allgemeine Pathologie und Bakteriologie (1958), 12, 970-93
CODEN: SZAPAC; ISSN: 0371-487X
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB A review of allicin, alkylthiosulfinates, cycloalliin, antibiotics, benzoxazolinone, and related compds. 41 references.

L5 ANSWER 69 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1956:52427 CAPLUS
DOCUMENT NUMBER: 50:52427
ORIGINAL REFERENCE NO.: 50:9994a-c
TITLE: Allicin, a bactericide derived from Allium sativum
AUTHOR(S): Ionescu, C. N.; Ichim, A.; Zingher, S.
CORPORATE SOURCE: Dept. Pharm. Chem., Acad. Sci., Bucharest
SOURCE: Studii si Cercetari de Chimie (1954), 2, 213-21

CODEN: SCECA2; ISSN: 0039-3908
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB A new synthesis for allicin (I) was devised. CH2:CHCH2OH is treated with HBr + H2SO4 to furnish CH2:CHCH2Br which then is treated with Na2S2 to furnish (CH2:CHCH2)2S2 (II), which is then fractionally distilled at 78-82° and 16 mm. free it from any higher sulfides. II is then oxidized with H2O2 (30%) in AcOH to furnish I, yellow oil, characteristic odor, stable at room temperature, nD20 1.5628, d22 0.91975, soluble in EtOH, Et2O, CHCl3, C6H6, insol. in H2O, decolorizes Br in H2O, and KMnO4, and decompose with acids and alkalies. Treatment with Sn + HCl furnishes CH2:CHCH2SH. With l-cysteine in H2O + EtOH, I produces S-allylthiocysteine.

L5 ANSWER 70 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1953:54810 CAPLUS
DOCUMENT NUMBER: 47:54810
ORIGINAL REFERENCE NO.: 47:9290h-i,9291a-b
TITLE: Antibiotic principle of Allium sativum. Structure of allicin; preparation and properties of diphenyl disulfide oxide
AUTHOR(S): Rao, P. L. Narasimha; Verma, S. C. L.
CORPORATE SOURCE: Indian Inst. Sci., Bangalore
SOURCE: Journal of the Indian Institute of Science (1952), 34, 315-21
CODEN: JIISAD; ISSN: 0019-4964
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB A diallyl disulfide oxide structure is suggested for allicin (I) instead of the diallyl thiosulfinate structure proposed by Cavallito (cf. C.A. 39, 324.4) on the basis of dipole moment measurements of the diphenyl analog of I, thermochem. considerations, and the reaction of I with cysteine. Diphenyl disulfide oxide (II), which resembles I in its reaction with HIO4, was prepared by adding 0.1 mole BzO2H in CHCl3 to 0.1 mole (PhS)2 in 50 ml. of dry CHCl3 at 0° over 0.5 hr. with stirring, stirring the mixture 50 min. at room temperature, shaking successively with cold, 5% NaHCO3 solution, 50 ml. of 2% NaHCO3 solution, and 50 ml. cold water, drying the CHCl3 solution over anhydrous Na2SO4, evaporating in vacuo to 10 ml., adding 50 ml. petr. ether (b. 30-50°), cooling the mixture in an ice-salt bath, scratching to start crystallization, and refrigerating 12 hrs. to give yellow needles, m. 69° (from petr. ether). The in vitro antibacterial activities of II, p-acetamido-p'-nitro-diphenylthiolsulfonate (III) (C14H12O5N2S2), Na p-acetamidophenylthiolsulfonate, p-HO2CC6H4S2COEt, and o-MeC6H4S2COEt were determined III, m. 174° (from C6H6), was prepared by the method of Miller and Smiles (cf. C.A. 19, 1133).

L5 ANSWER 71 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1951:13667 CAPLUS
DOCUMENT NUMBER: 45:13667
ORIGINAL REFERENCE NO.: 45:2391d-i,2392a
TITLE: Pseudoallicin
AUTHOR(S): Belous, M. A.; Postovskii, I. Ya.
CORPORATE SOURCE: S. M. Kirov Ural Polytech. Inst., Sverdlovsk
SOURCE: Zhurnal Obshchei Khimii (1950), 20, 1701-10
CODEN: ZOKHA4; ISSN: 0044-460X
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 45:13667

AB An analog of the active principle of garlic, allicin, CH2:CHCH2SOSCH2CH:CH2 (I), haying the structure CH2:CHCH2SO2SCH2CH:CH2 has been prepared and named pseudoallicin (II). It is cleaved by cysteine analogously to I, yielding C3H5SO2H and C3H5SSCH2CH(NH2)CO2H (III), m. 181-2°, established by independent reduction with Sn and HCl to CH2:CHCH2SH and cysteine. II has 50% the potency of I against gram-pos. and gram-neg. organisms, and its activity is also unaffected by p-H2NC6H4CO2H; L-cysteine destroys its antibiotic properties. Its toxicity is analogous to that of I. Stirring 200 g. Na2SO3.7H2O in 300 ml. H2O at 60° with slow addition (1.5 hrs.) of 100 g. allyl bromide, followed by stirring 1.5 hrs. and 1 hr. on a steam bath, gave 188-94 g. crude product, which on extraction with hot 96% EtOH gave a double salt, 8CH2:CHCH2SO3Na.NaBr, decompose about 235°, stable at room temperature This product (180 g.) and 320 g. POCl3, heated 3 hrs. at 105°, then concentrated at 50-60° and 80 mm., cooled, stirred with 75 ml. CHCl3, filtered (the insol. part shaken with ice water and extracted again), and dried, gave 56.5 g. C3H5SO2Cl, b12-13 73-5°; redistn. gave 60% pure product, b12-13 74°, n14D 1.4730, d204 1.3322, which (2.8 g.) with NH3 in dry Et2O gave 95% of the sulfonamide, m. 43° (from C6H6); the latter (0.18 g.) with 0.25 g. Br in CHCl3 gave CH2BrCHBrCH2SO2NH2, m. 95-6° (from C6H6). The chloride treated with PhNH2 in the cold, then kept 0.5 hr. on a steam bath, gave C3H5SO2NHPh, m. 62° (from 40% EtOH). Addition of 28.1 g. chloride to a solution of 25 g. KOH in 50 ml. H2O saturated with H2S at 10-15°, stirring 1 hr. at room temperature, treatment with charcoal, evaporation, and extraction with hot BuOH gave 81% C3H5SO2SK, m. 147-8° (from absolute EtOH); acidification of its aqueous solution yields S, and on warming SO2 evolves. The K salt (17.6 g.) and 13.5 g. allyl bromide in 120 ml. Me2CO and 2 ml. H2O, let stand overnight, followed by filtration and concentration in vacuo, washing an Et2O solution of the oil with H2O, and reconcn. in vacuo gave 95% II, yellow undistillable oil, with strong garlic odor, n13D 1.5341, n14D 1.5338, d204 1.1850, surface tension against air at 10° 38.92 erg/sq. cm. It is soluble in the usual solvents, poorly soluble in H2O and petr. ether. Sn and HCl yield CH2:CHCH2SH; alkalies cause decomposition with loss of the odor. HgCl2 and AgNO3 give insol. ppts., Br water and KMnO4 are rapidly decolorized. With cysteine-HCl in aqueous EtOH at room temperature, II yields within a few min. a precipitate of III (S-allylmercaptocysteine), m. 180-2° (decomposition), reaching 85% in 30 min. and isolated by adjusting the pH to 6.0 with bicarbonate. Allowed to stand overnight in a mixture of HCl and Sn, then heated on a water bath in a stream of pure H, it readily evolved C3H5SH (recovered in an EtOH trap), while treatment of the filtered aqueous residue with H2S and evaporation gave L-cysteine-HCl, decompose 170-8°.

L5 ANSWER 72 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1950:5243 CAPLUS
DOCUMENT NUMBER: 44:5243
ORIGINAL REFERENCE NO.: 44:1011g-i
TITLE: Comparison of some properties of thiolsulfonates and thiolsulfinates
AUTHOR(S): Small, LaVerne D.; Bailey, John Hays; Cavallito, C. J.
SOURCE: Journal of the American Chemical Society (1949), 71, 3565-6
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB cf. C.A. 41, 6196h. AcOEt (1 l.) and 24.5 g. Et2S2 at 0°, treated (15 min.) with 5 mols. 40% AcO2H in 500 cc. AcOEt, stirred an hr., kept overnight at room temperature, and the excess AcO2H destroyed with 30 g. FeSO4.7H2O in 150 cc. H2O, give 12% Et ethanethiolsulfonate (I), b0.2 56°, nD25 1.4972. EtSO2Cl (0.5 mol.) in 250 cc. EtOH, added to

alc. K2S (0.5 mol. KOH in 250 cc. EtOH, saturated with H2S, and treated with an addnl. 0.5 mol. KOH) at 0°, made alkaline with alc. KOH, kept 15 hrs. at 25°, and heated 10 min. at 50°, gives 30% I. Cysteine-HCl and I, adjusted to pH 6.5 with NaOH, give EtS2CH2CH(NH2)CO2H, m. 196° (decomposition). I and (Et2S)2O are of comparable antimicrobial activity, I being more effective against Staphylococcus aureus and Klebsiella pneumoniae.

L5 ANSWER 73 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1949:17823 CAPLUS
DOCUMENT NUMBER: 43:17823
ORIGINAL REFERENCE NO.: 43:3482d-h
TITLE: Allium compounds. II. Enzymic degradation of alliine and the properties of alliinase
AUTHOR(S): Stoll, A.; Seebeck, E.
SOURCE: Helvetica Chimica Acta (1949), 32, 197-205
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: German
GI For diagram(s), see printed CA Issue.
AB cf. C.A. 42, 4136g. Alliinase (I), a lyoenzyme, was extracted from Allium sativum and purified by precipitation at the isoelec. point (pH 4.0). I splits alliine (II) into allicin (III), pyruvic acid, and NH3 according to the scheme: III has antibacterial properties. The optimum temperature for the reaction is 37°, the optimum pH between 5 and 8. Both solid and liquid I prepns. are unstable and are adversely affected by heat and organic solvents. A purified I solution was prepared by finely grinding 100 g. fresh garlic with solid CO2, adding 400 ml. H2O, warming with steady stirring to 37°, stirring 20 min. at 37°, filtering by suction, refiltering through a Buchner funnel with talc, adding 21 ml. 10% AcOH with stirring, centrifuging, suspending the precipitate in 150 ml. water, adding 10% aqueous NH3 to pH 6.4, filtering, acidifying with 10% AcOH to pH 4.0, centrifuging, and redissolving the enzyme in 400 ml. 1/15 M phosphate buffer (pH 6.4) with the addition of a little toluene. I splits over 80% II in 2 min., and the reaction is practically complete in 4 min. I did not affect cysteine.

L5 ANSWER 74 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1948:19336 CAPLUS
DOCUMENT NUMBER: 42:19336
ORIGINAL REFERENCE NO.: 42:4136g-i,4137a-i
TITLE: Allium compounds. I. Alliine, the true mother compound of garlic oil
AUTHOR(S): Stoll, Arthur; Seebeck, Ewald
CORPORATE SOURCE: "Sandoz", Basel, Switz.
SOURCE: Helvetica Chimica Acta (1948), 31, 189-210
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: German
AB cf. C.A. 41, 4893a. The enzymic cleavage of the genuine base, alliine (I), of garlic oil to the intermediate allicine (II) is followed by decomposition into the volatile, unpleasantly odorous (CH2:CHCH2)2S (III). The I content of Allium sativum is approx. parallel to the S content and both vary greatly according to the origin of the plant. Fresh bulbs (1 kg.) frozen in CO2 were finely ground, suspended in 3 l. MeOH, warmed to 10° 1 hr., and filtered. The filtrate and washings (4 l. of 80% MeOH) were concentrated in vacuo to 200 cc. and defatted with ether. The bright yellow dry residue (62 g.) contained about 6% organic S. The residue (20 g.) in 80 cc. H2O was vigorously stirred with 600 cc. alc. After standing 12 hrs. the sirupy residue was separated and dried in vacuo to a very hygroscopic

powder (16 g.) which was digested in 150 cc. of ice-cold MeOH. The insol. fraction, washed with absolute MeOH and ether and dried over H_2SO_4, gave 7 g. of a white nonhygroscopic H_2O-soluble powder containing 11% organic S. The addition of 48 cc. acetone to 2 g. powder in 20 cc. H_2O produced 810 mg. I, fine needles, m. 163.5° (decomposition), $[\alpha]D21$ 62.7°, reduced in the presence of Raney Ni catalyst by saturation of the $CH_2{:}CHCH_2$ group to the corresponding dihydroalliine (IV), $C_6H_{13}NO_3S$, m. 164-8°, $[\alpha]D22$ 33.0° (c 1.0, H_2O). In contrast to II (C.A. 39, 323.9) I shows no antibacterial activity in the staphylococcal cup-plate test, though activity appears on cleavage with alliinase. Potentiometric titration showed I to be amphoteric. I gives a red color with alloxan and a pos. ninhydrin reaction. A Van Slyke determination showed the presence of an NH_2 group. Cold alkaline I gave no red color with $Na_2Fe(CN)_5NO$ or with Grote's reagent (C.A. 25, 5876). On heating 2 min. a red color appeared, indicating the presence in I of S in an oxidized state. I oxidizes cysteine, H_2S, and AcSH, compds. containing free HS groups. I (2 g.) was shaken 2 hrs. with 5 cc. AcOH and 3 cc. AcSH. After 20 hrs. the crystallization of free S was complete. Working up of the filtrate and recrystn. from MeOH and ether yielded 2 g. of L-S-allyl-N-acetylcysteine (V), $C_8H_{13}NO_3S$, m. 120-2°, $[\alpha]D21$ -34.0° (c 1.0, MeOH), cleaved by alkaline hydrolysis to NH_3, AcOH, $AcCO_2H$, and $CH_2{:}CHCH_2SH$ (as shown by the formation of PrSH from the alkaline hydrolysis of L-S-propyl-N-acetylcysteine). The constitution of V was further demonstrated by synthesis from L-cysteine. The dry double salt from 2.4 g. L-cysteine-HCl and 8 g. $HgCl_2$ in 50 cc. alc. was treated with 30 g. $CH_2{:}CHCH_2Br$ at 60° 30 min. and the product was poured into 150 cc. H_2O. The excess $CH_2{:}CHCH_2Br$ was extracted with ether and the alc. removed by evaporation to 50 cc. in vacuo. The crude concentrate in 50 cc. H_2O at 70° was saturated with H_2S 20 min. and the reaction mixture boiled, filtered, concentrated to 50 cc., and neutralized with NH4OH. After concentration and treating with excess absolute alc., the crude product, recrystd. from 6 cc. of 50% alc., yielded 670 mg. leaflets of L-S-allylcysteine (desoxoalliine) (VI), $C_6H_{11}NO_2S$, m. 218-19°, $[\alpha]D21$ -16.0° (c 1.0, H_2O), identical with VI prepared by reducing I with $Na_2S_2O_5$. Accordingly, I may be regarded as an S-allylcysteine sulfoxide, $CH_2{:}CHCH_2SOCH_2CH(NH_2)CO_2H$, crystallizing with 0.5 H_2O. For chemical characterization were prepared N-acetylalliine brucine salt, $C_{31}H_{39}N_3O_8S$, m. 188-98° (decomposition), $[\alpha]D21$ -29.0°; N-benzoylalliine, $C_{13}H_{15}NO_4S$, m. 152-3.5°, $[\alpha]D20$ -6.0° (c 1,MeOH); N-(p-nitrobenzoyl)alliine, $C_{13}H_{14}N_2O_6S$, m. 180-2° (decomposition), $[\alpha]D20$ -9.0° (c 1.0, 0.1 N NaOH) (Me ester, m. 140-3°). I (1.1 g.) in 8 cc. H_2O and 3 cc. of 2 N NaOH was shaken vigorously 15 min. with 0.44 cc. PhNCS and the filtered solution acidified with dilute HCl to Congo red. Recrystn. from alc. yielded 1.45 g. prismatic (anilinoformyl)alliine, $C_{13}H_{16}N_2O_4S$, m. 141-3° (decomposition), $[\alpha]D21$ 76.0° (c 1, MeOH), hydrolyzed by 2 N NaOH at room temperature to PhNHCONH2 and $AcCO_2H$, and catalytically reduced in MeOH in the presence of Raney Ni to (anilinoformyl)dihydroalliine, $C_{13}H_{18}N_2O_4S$, m. 157.0-8.5°, $[\alpha]D21$ 44.0° (c 1.0, MeOH), also prepared from PhNCS and IV. The H_2O_2 oxidation of the model substance, $(CH_2{:}CHCH_2)_2S$, to the corresponding sulfoxide shows that S combined with an allyl group has a greater tendency to oxidation than the unsatd. linkage. The oxidation of 500 mg. VI in 8 cc. AcOH with 0.3 cc. of 36% H_2O_2 at 10° 1 hr. and at room temperature 5 hrs. gave, on working up in acetone, an S-allylcysteine sulfoxide (Ia), $C_6H_{11}NO_3S.0.5H_2O$, m. 146-8° (decomposition), $[\alpha]D20$ -12.0° (c 1.0, H_2O), in contrast to I, m. 163-5°, $[\alpha]D21$ 52.7°. According to Phillips (C.A. 20, 397, sulfoxides of this type have a semipolar linkage

and consequently Ia differs from I in containing a new asym. center at the S atom which exists in the racemic form. Oxidation of L-S-propylcysteine (prepared from L-cysteine-HBr and PrBr in 2 N NaOH and alc. at 25°) with 36% H2O2 and crystallization from dilute acetone yielded fine needles of a similarly S-racemic IV, m. 150-3°, [α]D20 -12.0° (c 1.0, H2O). Attempts to resolve Ia into its active components are in progress.

L5 ANSWER 75 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1947:31001 CAPLUS
DOCUMENT NUMBER: 41:31001
ORIGINAL REFERENCE NO.: 41:6196h-i,6197a-c
TITLE: Alkyl thiolsulfinates
AUTHOR(S): Small, La Verne D.; Bailey, John H.; Cavallito, Chester J.
CORPORATE SOURCE: Sterling-Winthrop Research Inst., Rensselaer, NY
SOURCE: Journal of the American Chemical Society (1947), 69, 1710-13
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 41:31001

AB EtSH and tert-BuSH, oxidized with iodine in EtOH, give 63% Et tert-Bu disulfide, bl 58-61°. The disulfide (0.1 mol) in 1 l. CHCl3, cooled in ice H2O, treated with 0.1 mol BzO2H in 200 cc. CHCl3, the mixture allowed to stand 0.5-1 h. at room temperature, the CHCl3 washed with 5% aqueous NaHCO3 and then with 2% aqueous NaHCO3, and the dried CHCl3 solution distilled in vacuo or the residue from the CHCl3 solution in 25 cc. Skellysolve B shaken with H2O, and the aqueous extract extracted with CHCl3, give RSOSR'. The yield decreases with a deficiency or excess BzO2H. They could not be prepared by the interaction of RSOCl and R'SH or R'SNa. , b.p., nD25, d420, Approx. solubility in H2O, Yield, %; MeSOSMe, 64°/0.5, 1.5481, 1.222, ∞, 20; EtSOSEt, 67°/0.5, 1.5244, 1.104, 11, 45; PrSOSPr, 25-35°/0.01, 1.5098, 1.041, 2, 45; iso-PrSOS-iso-Pr, 25-30°/0.1, 1.5090, 1.057, 2.5, 7-30; EtSOS-tert-Bu, 25-35°/0.1, 1.5092, 1.043, 3, 60; C3H5SOSC3H5, unstable, 1.5600, 1.109, 2.5, 63; BuSOSBu, 20-30°/10-5, 1.5041, 0.992, 0.1, 54; AmSOSAm, 45/10-5, 1.4990, 0.988, 0.015, 56; The thiolsulfinates demonstrate antibacterial and antifungal action, with the higher members showing increasing specificity of action. In general, it requires about the same quantities of the thiolsulfinates of lower mol. weight (2, 4, and 6 C atoms) to inhibit gram-pos. as compared with gram-neg. bacteria but as the length of the C chain increases, activity against gram-neg. organisms decreases, whereas that against gram-pos. bacteria increases. Branching results in lowered activity, the order of activity being Pr > iso-Pr > tert-Bu Et derivs. This new class of antimicrobial agents appears to act by binding SH groups essential for cell metabolism

L5 ANSWER 76 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1947:12043 CAPLUS
DOCUMENT NUMBER: 41:12043
ORIGINAL REFERENCE NO.: 41:2461g-i
TITLE: Investigations on plant antibiotics. I. Studies on allicin, the antibacterial principle of Allium sativum (garlic)
AUTHOR(S): Rao, R. Raghunandana; Rao, S. Srinivasa; Venkataraman, P. R.
CORPORATE SOURCE: Indian Inst. Sci., Bangalore, India
SOURCE: Journal of Scientific & Industrial Research (1946), 1B, 31-5
From: J. Sci. Ind. Research 5, No. 2

CODEN: JSIRAC; ISSN: 0022-4456
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB A mixture of crushed garlic (1000 g.) and absolute alc. (2000 cc.), after standing overnight, is filtered under pressure and the filtrate concentrated in vacuo. The pressed residue is extracted with 2000 cc. of absolute alc. and similarly worked up. The alc.-free concentrates are extracted with $CHCl_3$ (once with 50 cc., twice with 25 cc. for each 100 cc. of concentrate). This extract, containing all the antibiotic activity, is evaporated in vacuo at 30° after drying over Na_2SO_4. The yield of residual oil is 2.5 times that obtained by Cavallito and Bailey (C.A. 39, 323.9). The oil is antibacterial against typical gram-pos., gram-neg., and acid-fast bacilli, and has antifungal properties. It is comparatively stable in the presence of blood and artificial gastric juice, but is inactivated by artificial pancreatic juice. It inhibits the milk-clotting activity of papain and the amylolytic activity of β-amylase, probably by reacting with -SH enzymes of tissues.

L5 ANSWER 77 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1947:672 CAPLUS
DOCUMENT NUMBER: 41:672
ORIGINAL REFERENCE NO.: 41:94c-i
TITLE: Relationship of thiol structures to reaction with antibiotics
AUTHOR(S): Cavallito, Chester J.
CORPORATE SOURCE: Winthrop Chemical Co., Rensselaer, NY
SOURCE: Journal of Biological Chemistry (1946), 164, 29-34
CODEN: JBCHA3; ISSN: 0021-9258
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB The reactivity of six sulfhydryl compds., l-cysteine (I), l-cysteinylglycine (II), glycyl-l-cysteine (III), glutathione (IV), N-acetylcysteine (V), and thioglycolate (VI) toward 7 antibiotics, penicillin G (VII), streptomycin (VIII), gliotoxin (IX), pyrocyanine (X), and the active principle of Allium sativum ($C_6H_{10}S_2O$) (XI), Arctium minus ($C_{15}H_{20}O_5$) (XII), and Asarum canadense (principle A) (XIII) (cf. Cavallito and Bailey, C.A. 40, 2936.3) was studied. The reactions were carried out in K phosphate buffers at pH 6, 7, and 8 at 25°. The rate of reaction was measured by observing the loss of activity of the antibiotic when tested by the routine cylinder plate method against S. aureus (the pyrocyanine reaction was observed visually by the change in color from blue to green to colorless). The concns. of the antibiotics per cc. of reaction mixture were: VII and IX, 0.1 mg.; VIII, 200 γ; X, XI, and XII, 1.0 mg.; and XIII, 0.05 mg. IX, XI, and XII reacted with all 6 of the sulfhydryl compds. within a few min. reaction time. VII and XIII showed an increase in rate of reaction with the thiols with increase in pH from 6 to 8; the other antibiotics showed no appreciable differences with change in pH. The approx. times (in hrs.) required by I and II to inactivate the antibiotics were VII, < 1; VIII, < 0.25; X, 0.25-0.5; XIII, 4; for III the times required were: for VII, 18; VIII, 3; X, 0.5; and XIII, 24; for IV the times were: VII, 72; VIII, 5; X, 1; and XIII, 48; for V and VI the times were: VII, > 100; VIII, > 100; X, 1; and XIII, > 48. S-Methylcysteine (XIV) did not react with any of the antibiotics within 24 hrs. On the basis of the specificity and speed of reaction with thiols the antibiotics may be divided as follows: Group I consisting of IX, XI, and XII, which show little specificity in reactivity toward thiols; Group II consisting of X, which shows intermediate activity; and Group III consisting of VII, VIII, and XIII, which react slowly with more specific sulfhydryl types of compds. containing basic amino groups in the vicinity of the SH group. The possible significance of the observations to the mechanism of interference of antibiotics with biologically essential SH

groups is discussed. II-HCl was prepared by the reduction procedure of Loring and du Vigneaud (C.A. 30, 80.8) and was isolated by the procedure given below for the preparation of III. II-HCl was isolated as an amorphous hygroscopic salt, m. 70° (decomposition), [α]025 21.5° (20 mg. per cc. water) and gave a pos. Grotes test (C.A. 25, 5876.2) for SH groups. III-HCl was prepared using the procedure of Greenstein (C.A. 33, 4610.9). The residue from the Na-liquid NH3 reduction was dissolved in water, acidified with HCl, and a solution of HgCl2 and NaOAc added to precipitate the mercaptide. The dipeptide was liberated with H2S, the excess H2S removed in vacuo, and the process was repeated. After removal of the H2S the solution was concentrated in vacuo, made strongly acid with HCl, and allowed to evaporate to dryness over solid NaOH in a vacuum desiccator. A hygroscopic, amorphous solid was obtained, m. 90° (decomposition) [α]025 2.5° (20 mg. per cc. of water), Grotes SH test pos.

L5 ANSWER 78 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1945:20897 CAPLUS
DOCUMENT NUMBER: 39:20897
ORIGINAL REFERENCE NO.: 39:3325g-i,3326a
TITLE: Antibacterial principle of Allium sativum. III. Its precursor and "essential oil of garlic."
AUTHOR(S): Cavallito, Chester J.; Bailey, John H.; Buck, Johannes S.
SOURCE: Journal of the American Chemical Society (1945), 67, 1032-3
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB cf. C.A. 39, 324.4. The name allicin has been discarded in view of possible confusion with established medicinal products. The antibacterial principle (I) is relatively stable in 0.2% aqueous solution and less and is very unstable in the pure state. Nevertheless, it is present in whole garlic to the extent of 0.3-0.4% and appears to be stable therein over long periods of time. Whole garlic cloves and dry ice, ground under acetone, washed with acetone, and dried at 70°, gives 30% of powder which contained all of the potential active principle. With a small amount of H2O, the typical odor was detected and I could be extracted and isolated; this demonstrates that neither I nor the allyl sulfides found in "essential oil of garlic" (II) is present as such in whole garlic. The behavior of the dry powder with EtOH shows that whole garlic contains the active principle in the form of a thermostable precursor (III) which is very rapidly broken down to yield I when the garlic cells are crushed. This conversion takes place only in the presence of an enzyme and water. The sequence of events in the usual preparation of II is: III + enzyme → C3H5SOSC3H5 which. upon steam distillation yields (C3H5S)2 and small quantities of other sulfides.

L5 ANSWER 79 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1945:1955 CAPLUS
DOCUMENT NUMBER: 39:1955
ORIGINAL REFERENCE NO.: 39:324c-f
TITLE: Allicin, the antibacterial principle of Allium sativum. II. Determination of the chemical structure
AUTHOR(S): Cavallito, Chester J.; Buck, Johannes S.; Suter, C. M.
SOURCE: Journal of the American Chemical Society (1944), 66, 1952-4
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB Allicin (I) probably has the formula C6H10OS2 (mol. weight 162). With alkali a mole of I yields 0.4 mole each of SO2 and allyl disulfide; no H2S or S is formed. On standing at room temperature I forms an inactive viscous liquid (II), which is insol. in H2O and cannot be distilled; the mol. weight is approx. 485 and the S content 42.63%. I and l-cysteine at pH 6 give the compound C3H5S2CH2CH(NH2)CO2H, m. above 185°, [α]D -150° (0.1 N HCl). I shows no selective absorption between 224-440 mμ. I loses its antibacterial activity when treated with NaCN or cysteine at pH 6. N-Acetylcysteine reacts readily with I but the S-Me derivative does not. KMnO4 and Br water are rapidly decolorized by I. H2O2 inhibits formation of II from I in H2O and does not cause rapid inactivation. I is not rapidly decomposed in C5H5N. I oxidized HI but the liberated I reacts with the other products in solution I is probably C3H5S(:O)SC3H5, although the structure (C3H5S)2O is not entirely eliminated.

L5 ANSWER 80 OF 80 CAPLUS COPYRIGHT 2008 ACS on STN
ACCESSION NUMBER: 1945:1954 CAPLUS
DOCUMENT NUMBER: 39:1954
ORIGINAL REFERENCE NO.: 39:323i,324a-c
TITLE: Allicin, the antibacterial principle of Allium sativum. I. Isolation, physical properties and antibacterial action
AUTHOR(S): Cavallito, Chester J.; Bailey, John H.
SOURCE: Journal of the American Chemical Society (1944), 66, 1950-1
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Ground garlic cloves (4 kg.) are stirred with 5 l. of 95% EtOH for 30 min., the filtrate (5200 cc. containing 2.5-4 mg. per cc. of allicin (I)) concentrated at 15-20 mm. (the alc. distillate discarded), the residue distilled with steam (about 9 l. of aqueous distillate), and the distillate extracted with ether, giving 6 g. of I, d20 1.112, nD20 1.561; the solubility in H2O at 10° is approx. 2.5%; it is fairly insol. in the Skellysolves. Pure I is irritating to the skin and the odor is much more characteristically that of garlic than is that of the various allyl sulfides. Alkaline hydrolysis of I gives 1 mole of SO2 from 400-450 mg. of I. Aqueous solns. of I have a pH of approx. 6.5; upon standing an oily precipitate forms; the acidity slowly increases from formation of small quantities of SO2 and the activity of the solution decreases. Addition of alkalies leads to immediate inactivation with precipitation of allyl disulfide and formation of an alkali sulfite. I is about equally effective against gram-pos. and -neg. organisms; it shows an activity equivalent to about 15 Oxford penicillin units per mg., which is about 1% of the activity of penicillin. However, I is equally effective against the gram-neg. organisms which are practically unaffected by penicillin. The antibacterial activity is unaffected by the presence of p-aminobenzoic acid. The LD50 for I in aqueous solns. is of the order of 60 mg. per kg. given intravenously and 120 mg. per kg. by subcutaneous administration.

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